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POLICIES PLAN

THE TOWN OF APEX
NORTH CAROLINA
1976



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Prepared by

THE TOWN OF APEX, NORTH CAROLINA

James W. Austin, Mayor

Harvey W. Talbott, Town Administrator

Town Commissioners

Larry B. Jordan

W. Nolan Cooke

William W. Lantry, Jr.

J. Talbot Hitt

Harold L. Maxwell

POLICIES PLAN

Apex, North Carolina

1976

Prepared by

The Apex Planning Board

Apex (In-town)

Extraterritorial (County)

Sharrill McInnes, Chairman

W. J. Smith, Jr.

Mrs. E. M. Fenn Jr.

John M. Payne

Abraham L. Jeyifor

Charles Thayer

James L. Brown, Jr.

Douglas Hunt

E. O. Jorgensen

Prepared by the Triangle J Council of Governments

Triangle J Council of Governments

P. O. Box 7226

Research Triangle Park, N. C. 27701

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conservation planning grant from the Department of Natural
and Historic Resources of the State of North Carolina.

Prepared for:

THE TOWN OF APEX, NORTH CAROLINA

James W. Austin, Mayor

Aubrey W. Talbert, Town Administrator

Town Commissioners:

Larry M. Jordan
William H. Livesay, Jr.
Harold L. Metcalf

W. Nolan Cooke
J. Talmadge Mills

Prepared by:

The Apex Planning Board

Apex (In-town)

Sherrill Brinkley, Chairman
Mrs. E. M. Edwards
Abraham L. Justice
James Herndon, Jr.
E. O. Seagroves

Extraterritorial (County)

W. J. Booth, Jr.
John W. Payne
Elmore Thorpe
Douglas Poe

With technical assistance from:

Triangle J Council of Governments
P. O. Box 12276
Research Triangle Park, N. C. 27709

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PREFACE

In July of 1975, the Town of Apex contracted with the Triangle J Council of Governments for technical assistance in preparing and implementing a planning program dedicated to the improvement of the community. The program was partially financed through a local planning and assistance grant from the Department of Housing and Urban Development .

The work the Apex Planning Board and the staff of the Triangle J Council of Governments undertook during the one-year contract is outlined in three steps.

- 1) Inventory and Analysis of existing conditions and constraints upon future developments.
- 2) Policy Formulation which addresses the problems and potential for future growth as well as setting minimum standards for such physical development.
- 3) Policy Implementation which involves taking the critical step from what is wanted in Apex to what will be achieved.

More broadly stated, these steps involved the following tasks and products.

Inventory and Analysis

In this initial stage of the study, information concerning existing land uses, housing conditions and natural features such as slope and soils was gathered and mapped for Apex and its surrounding areas. In addition relevant social and economic information was examined as an influence on the physical development of Apex. Population projections were made or taken from existing studies.

End Product: A document and supporting maps detailing the inventory analysis and projection work.

Policy Formulation

With the completion of the inventory, TJC0G assisted town officials and interested citizens in formulating goals and future objectives as well as standards and criteria for the Town's physical development. An example of such a policy decision would be determination of minimum lot size for an area where the slope of the land exceeds a certain percent. Much of the work in this stage emphasized the importance of establishing a dialogue between townspeople and the planner. Such a process would be educational for both parties and could serve to strengthen local interest in land use planning.

CHAPTER 1

INTRODUCTION TO A POLICIES PLAN FOR APEX

PURPOSE

End Product: A coherent and comprehensive policies plan for land development in the Town of Apex based on the application of land development standards and policies.

Policy Implementation

Using the policies plan as a guide, the policy implementation stage focussed on developing or revising regulatory instruments such as zoning and subdivision regulations. The design of such tools is critical to the entire process for, in the end, they will offer the Town the mechanisms to guide physical development in a manner which is consistent with the objectives expressed in the policies plan. In addition to regulatory measures, the role of incentives such as utilities extension policies was examined.

End Product: Zoning ordinance and subdivision regulation revision and other policy recommendations.

Chapter 1

INTRODUCTION TO A POLICIES PLAN FOR APEX

Purpose

Towns are complex cultural, social, and governmental organizations. They serve as centers of commerce and industry while being responsible for provision of utilities and desirable residential, commercial, and industrial environments for the persons and businesses in them. The success of a town is also often determined by external locational or physical factors, that influence the general well being of a town's residents and the activities they support and sponsor. The locational and physical factors that presently affect Apex would indicate a climate of growth and development for Apex in the years to come. In recent years the town has become increasingly attractive to persons and groups with a variety of interests. These include the family head desiring to locate his family residence, the industrial group desiring to locate manufacturing facilities near a good labor supply, and commercial interest desiring good or central market areas. All of these interests have shown increased attraction to the Apex area and land development pressures have increased. The Town government of Apex now faces planning and zoning decisions of greater magnitude with more frequency than they have before.

Apex is located in the west central portion of Wake County, North Carolina, a county that is experiencing rapid population growth, particularly in the central area around Raleigh. Apex, along with the towns of Cary and Garner, is thought of as the northern anchor city of the Piedmont Industrial Crescent, a chain of municipalities in North Carolina where industrialization is occurring. This chain starts in Raleigh and passes through Durham, Burlington, Greensboro, High Point, Winston-Salem and on south through Charlotte and South Carolina. Along with industrialization, population growth has also been occurring in this industrializing area. This population growth has resulted from the rapid industrial growth and the service activities necessary to support it. Apex, by reason of its location near Raleigh, shares in this growth. Many workers who reside in Apex work in Raleigh, in the industrial sectors of the economy or in the state government complex located there. The Research Triangle Park and other employment centers also contribute to Apex's growth. In the 1960-70 census period the Town of Cary had a population growth factor of 121 percent, the largest growth factor in Wake County. Apex in the same census period had a population growth factor of 60 percent, the second highest in Wake County. The Cary planning area is situated directly between Apex and Raleigh and there is joint boundary between the planning areas of the two towns.

Pressure for land subdivision and other land use proposals has increased greatly in the last few years in the Apex area. It can be assumed that growth pressure and development will continue into the future. Because of this it is important that Apex take stock of its situation, think about what is desirable for the town, and determine desirable future policies.

To achieve a desirable future, consistent growth (or "no growth") policies must be developed for the town. The basis for this policy climate can be obtained through study of soil, water, and utility capabilities, and through planning of suitable development patterns.

Apex has not allowed change to occur haphazardly. An active Apex Planning Board is revising ordinances, reviewing enforcement procedures, and studying each development proposal to assess its impact on the town. In order to evaluate the effects of such proposals, anticipate the town's needs, and properly regulate and plan for development, Apex should develop a set of land use policies based on a wide variety of factors including soils information, land capability, utilities capacity and other information. The Planning Board would analyze the current situation, make projections for the future, and consider possible alternatives for the future. These policies should be developed with input from the town's citizens, particularly when they concern future alternatives and development policies.

This Policies Plan begins such a compilation of information for consideration and use by the Town Board and the citizens of Apex. Apex, together with the extraterritorial area outside the town limits where the Town has planning and zoning jurisdiction is the area of focus for this plan.

The Apex Planning Area

The Apex planning area is constituted on the one-mile radial extraterritorial basis permitted by State Legislation for towns the size of Apex. This means that all points within one mile of the Apex town limits constitute the Apex planning area.

The Apex planning jurisdiction has been extended in the past through annexation of areas to the north and east of the previous town limits. The extension of this planning area should have been accompanied by procedures classifying and zoning the land uses in these added areas into zoning area classifications. This apparently was not done. Numerous nonconforming uses exist in this newly-added extraterritorial area. At least one of these nonconforming uses had achieved conforming status under the previous county zoning jurisdiction. A study of this new extraterritorial area with an eye toward establishing a suitable zoning pattern agreeable to the residents and business interests in the area should be undertaken, and applications made by the nonconforming uses to achieve conforming status should the Apex Town Boards choose to grant them this status.

The town limits of Apex and Cary are less than two miles apart and a boundary has been mutually negotiated between their planning jurisdictions. This negotiated boundary follows property ownership lines. When the Town of Cary achieves population sufficient to qualify for two-mile extraterritorial jurisdiction, which is likely in the near future, a new negotiation for additional boundary will have to take place.

The towns of Apex and Cary should adopt a mutually informative and cooperative attitude regarding the area between them. The area between the two towns

should be mutually planned so that compatible land uses will be allowed. Part of the Apex reservoir watershed is currently within the Cary planning jurisdiction. Thoughtful and informed cooperation should be the rule between the towns when dealing with this area. A policy calling for the routine exchange of planning board minutes would be one means of implementing this cooperation and information exchange.

The map on the following page indicates the boundaries of the Apex planning area.

History and Geography

Apex celebrated its centennial in 1973. It was incorporated by an act of the General Assembly on February 23, 1873, with the charter providing for an incorporated area one mile square. It was discovered eighty years later that an engineering error had incorporated the town at 5,380 feet square, 100 square feet larger than was intended.

The name Apex probably came from the fact that the town is located at the highest point on the former Chatham Railroad Company, which is now a part of the Seaboard Coast Line Railroad. The Chatham Railroad Company was "for the purpose of effecting communication between the North Carolina Railroad Company and the coal fields of Chatham County." The early existence of Apex was justified not only by the transportation of coal but by lumber, pitch, turpentine, and tar industrial outputs as well.

Later in the town's development, the tobacco industry established the first tobacco auction market in Wake County in Apex. This was in 1905, with a warehouse located at the intersection of Hunter and Salem Streets. The tobacco industry was prominent in Apex until the middle 1920's when the market closed.

Since World War II, many industries have chosen to locate in the Apex area. These include manufacturers of cosmetics, swimwear, and wood products including plywood. These new industries and the convenient commuting distance to industries and governmental offices located in Raleigh have contributed to the rapid growth of Apex in recent years.

The Town's location near the Jonesboro geological fault makes groundwater unreliable as a water source for municipal use because wells in the area are unreliable when pumped in the volumes necessary for municipal and industrial supply. Location next to the geological fault and unusual soil conditions also cause difficulties. Soils that are impervious to water or that have shallow soil depth to bedrock are less than suitable for septic tank operation, making municipal sewage disposal a desirable alternative. When the Town of Apex is able to offer both a reliable treated water source and adequate municipal sewage treatment, the Town will become more attractive to development of all kinds, and the pressure for land use planning decisions will increase.

Apex is also located close to the Research Triangle Park. This facility furnishes employment for over 10,000 persons with several research concerns located there. An increasing number of Apex residents have livelihoods either directly or indirectly connected with this Research Park activity.

In a wider than regional sense, Apex enjoys a position near the northern anchor city of the Piedmont Industrial Crescent. This industrializing area extends from Raleigh westward through Durham, High Point, Winston-Salem, Greensboro and south through Charlotte into South Carolina.

Enhanced by efficient highway transportation, a pool of available labor, and an agreeable living climate, this industrializing trend has brought with it population increases for all of the cities along this crescent and an increase in the service and warehousing industries as well. Apex, because of its position near Raleigh, is subject to this effect.

The location map on the following page indicates Apex's location with planning Region J of North Carolina. Planning assistance to the towns and counties of this six-county region is provided, in part, by Triangle J Council of Governments. Apex is a participating member town in the Council of Governments. The offices of Triangle J Council of Governments are located in the Research Triangle Park, eight miles north of Apex.



REGIONAL LOCATION

This map illustrates the regional location of the study area, which is shaded in black and labeled 'APEX'. The map includes the following counties and major roads:

- Counties:** CHATHAM COUNTY, ORANGE COUNTY, DURHAM, HILLSBOROUGH, WAKE COUNTY, LEE COUNTY, and JOHNSTON.
- Major Roads:** U.S. 70, U.S. 501, U.S. 401, U.S. 301, U.S. 210, U.S. 15, U.S. 101, U.S. 64, U.S. 42, U.S. 39, U.S. 22, U.S. 10, U.S. 5, U.S. 1, U.S. 2, U.S. 3, U.S. 4, U.S. 5, U.S. 6, U.S. 7, U.S. 8, U.S. 9, U.S. 10, U.S. 11, U.S. 12, U.S. 13, U.S. 14, U.S. 15, U.S. 16, U.S. 17, U.S. 18, U.S. 19, U.S. 20, U.S. 21, U.S. 22, U.S. 23, U.S. 24, U.S. 25, U.S. 26, U.S. 27, U.S. 28, U.S. 29, U.S. 30, U.S. 31, U.S. 32, U.S. 33, U.S. 34, U.S. 35, U.S. 36, U.S. 37, U.S. 38, U.S. 39, U.S. 40, U.S. 41, U.S. 42, U.S. 43, U.S. 44, U.S. 45, U.S. 46, U.S. 47, U.S. 48, U.S. 49, U.S. 50, U.S. 51, U.S. 52, U.S. 53, U.S. 54, U.S. 55, U.S. 56, U.S. 57, U.S. 58, U.S. 59, U.S. 60, U.S. 61, U.S. 62, U.S. 63, U.S. 64, U.S. 65, U.S. 66, U.S. 67, U.S. 68, U.S. 69, U.S. 70, U.S. 71, U.S. 72, U.S. 73, U.S. 74, U.S. 75, U.S. 76, U.S. 77, U.S. 78, U.S. 79, U.S. 80, U.S. 81, U.S. 82, U.S. 83, U.S. 84, U.S. 85, U.S. 86, U.S. 87, U.S. 88, U.S. 89, U.S. 90, U.S. 91, U.S. 92, U.S. 93, U.S. 94, U.S. 95, U.S. 96, U.S. 97, U.S. 98, U.S. 99, U.S. 100.

Accessibility

One reason for the industrial potential of the Piedmont Industrial Crescent is the accessibility of the urban areas located within it. Apex is particularly accessible.

Rail transportation is available in Apex through its location on the main line of the Seaboard Railroad system. Passenger trains no longer stop in Apex, but main line passenger trains between New York and Florida pass through the Town. Persons may avail themselves of this passenger service by traveling the short distance to Raleigh to board the trains. Freight service and siding space is available in Apex for industrial and commercial service. This freight service usually handles larger, bulkier, heavier items that do not rely on tight delivery schedules.

Truck transportation has assumed most of the scheduled commodity delivery in Apex - as it has elsewhere. Many truck lines serve or can serve the Town of Apex. Indeed, the Apex area serves as a terminus for transportation of compressed gas, which enters the area through a pipeline for distribution by truck.

Apex is located near three highways. East and west, passing north of Apex, Highway 64 furnishes a route from Raleigh to Pittsboro, Siler City, and points to the west. This route by-passed Apex, crossing an area where development pressure is being experienced by both Apex and Cary.

Highway 55 runs north and south through the Town, furnishing Apex with a link to the Research Triangle Park and Raleigh-Durham Airport areas. To the south on Route 55 lies the Town of Fuquay-Varina and access to the North Carolina/South Carolina beach resort areas.

U.S. Highway #1 by-passes Apex to the south. The junction of Route 64 and 1 occurs between Apex and Raleigh. U.S. 1 furnishes access to Sanford and other cities to the southwest.

All three of these routes by-pass the central business district. This diverts high speed through traffic from this business area, leaving only traffic desiring to enter for residential access or local business purposes. The merchants in the old central business area have already given attention to this fact by improving the general appearance of the area and creating an attractive shopping atmosphere that is free from excessive sign clutter and is pleasantly color-coordinated.

The Town of Apex has access to air transportation through the Raleigh-Durham Airport. This airport facility is located approximately eight miles to the northeast of the town, and is served by several passenger and freight airlines. Traffic access to the airport from Apex is fairly direct, and does not encounter as much competing traffic as access from Durham, Raleigh, or Chapel Hill.

Chapter II LAND USE AND HOUSING CONDITIONS

Land Use

Primary to the appearance and atmosphere of a town is its land use pattern. If differing land uses locate close to one another, conflicting interests and other disturbing conditions often result. Land uses that produce noise, fumes, odors, or other disturbing conditions obviously do not mix well with residential land use areas. Conversely, establishment of a residence in an otherwise industrial or commercial area would also not be advisable, because industrial and commercial expansion may be blocked. The essence of a community's emotional and physical health and well-being lies in establishing compatible relationships between the differing land uses in its planning area.

Land use analysis involves a study of the land within the planning jurisdiction. Other important considerations are soil limitations, slope, servability by utilities, proximity to transportation, relation to other areas within the planning jurisdiction, and any other factors encountered as important to the future of the Town. This type of analysis, when mapped and recorded, can serve as a useful planning information source for the Apex Planning Board in its advisory capacity, and for the Town Commissioners in their decision-making. In a random unplanned situation, a town board, when confronted with a development idea must often wonder if that idea is or will be the most advisable idea for a particular area. If feasibility of a variety of land uses for an area has been thought of in advance, the town board has a much more sound basis for decision-making.

The existing land use pattern in Apex, when compared with the land use patterns in other towns, indicates that advanced planning and thought has already been exercised in attaining the present pattern. Grouping of industrial uses in an area to the south of town where they occupy spacious land areas has been a worthwhile achievement. Other areas of the town have less mixing of varied land uses than is often experienced elsewhere. Land use planning could help preserve this already desirable situation, and improve it in the future.

EXISTING LAND USE

LEGEND

- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- WAREHOUSE
- SOCIAL & CULTURAL
- STANDPIPE & WELL LOCATIONS

EXTRAJURISDICTIONAL LIMIT

ONE

APEX

TOWN

DURHAM

N.C.

Middle

US 64

NC 55

Beaver Creek

1600

1500

1400

1300

1200

1100

1000

900

800

700

600

500

400

300

200

100

0

2000

4000

6000

FEET

IN

N

Housing Conditions

A survey of housing conditions in Apex in 1975 revealed a total of 971 dwelling units. Of these 971 units, 736 were in sound condition, 103 were in the deteriorating category, and 102 were considered dilapidated. At the time of the survey there were 30 vacant units.

The generalized housing condition map on the following page indicates areas where several housing units of a particular category were found close to one another. Individual units of some categories were found in areas where the majority of houses were in a different category.

Apex should adopt a set of policies and procedures aimed at upgrading housing conditions in those areas where dilapidation and deterioration exist. Adoption of a minimum housing code and a systematic, long term enforcement of it should be considered by the town. Delapidated and unoccupied structures are not only an eyesore but a menace to health and safety in the community. Such structures should either be upgraded or demolished. A system of building inspection would give the town a means of calling attention to poor housing conditions and causing their rehabilitation or their elimination. Often a property owner will respond to informal urging and reminding, with condemnation proceedings used only as a last resort by the town.

Too often, housing neglect occurs because property owners are unaware of the services, utilities, and other benefits available from the town. Often, awareness of these benefits can persuade a property owner or landlord to remodel or tear down a dilapidated structure.

At the time of the housing survey, Apex had 30 vacant dwelling units. This is a vacancy rate of about 3 percent, which is in the lower part of the desirable range. If the vacancy rate falls too low, housing prices and rents may be driven up because of the lack of choice available to the home seeker. Generally, an overall vacancy rate of up to 5 percent is considered desirable.

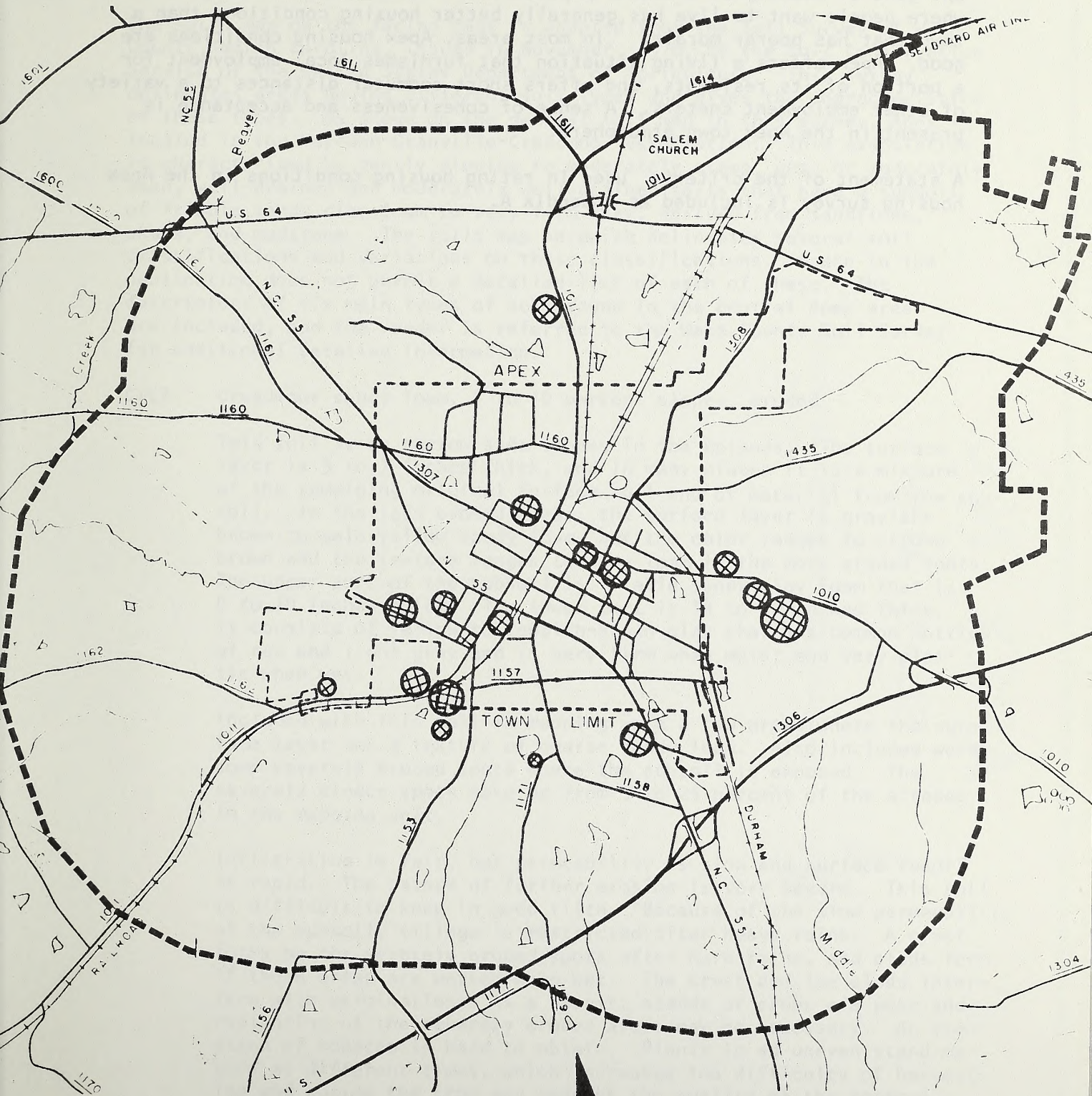
Analysis of the housing condition survey indicates that approximately 1 of every 10 houses is in dilapidated condition. These poor-condition houses are usually found in the older, lower-income sections of the town. It is often difficult to correct these poor housing units on an individual basis because other housing is not available for the occupants of a sub-standard unit while rehabilitation work is undertaken. Even if such temporary re-housing units were available the tenant might not be able to afford a higher rental.

Help for such situations is available through Section 8 of the Housing Act and other federal assistance programs. Should Apex be fortunate enough to qualify for future Community Development funding, a concentrated effort could be made to improve housing in a particular target area. The town government of Apex should remain attentive to possible federal programs, and should be able and willing to file applications for such housing assistance programs when they are available.

Lacking assistance from federal programs, a tactful, steady, evenly applied code enforcement program could go far toward improving housing conditions and could also serve as a source of data and as evidence of community concern and housing effort when federal housing assistance is sought.

APEX, N.C.

BLIGHTED AREAS



Housing appearance and condition is an indicator of the attitudes, well-being and general economy of a town's population. A town with a healthy economy, where people want to live has generally better housing conditions than a town that has poorer morale. In most areas, Apex housing conditions are good. Apex offers a living situation that furnishes local employment for a portion of its residents, and offers short commuter distances to a variety of other employment centers. A sense of cohesiveness and acceptance is present in the Apex town atmosphere.

A statement of the criteria used in rating housing conditions in the Apex housing survey is included as Appendix A.

Soils Mapping and Interpretations

The soils map on the facing page is adapted from the Soil Survey of Wake County, North Carolina, issued in November, 1970, by the Soil Conservation Service of the United States Department of Agriculture. This survey delineates areas having different soil types and gives the characteristics of these types. As shown on the general soil map in this survey, Apex is located in the Mayodan-Granville-Creedmoor association. This association is characterized by gently sloping to moderately steep, deep or moderately deep, well-drained and moderately well-drained soils that have a subsoil of friable sandy clay loam to very firm clay; derived from sandstone, shale, and mudstone. The soils map herewith delineates several soil classifications and variations on those classifications. Space in the publication does not permit a detailed list of each of these. The descriptors of six main types of soil found in the central Apex area are included, and the reader is referred to the Wake County Soil Survey for additional detailed information.

CrC2 Creedmoor sandy loam, 6 to 10 percent slopes, eroded

This soil is on narrow side slopes in the uplands. The surface layer is 3 to 7 inches thick, and in many places it is a mixture of the remaining original surface soil and of material from the subsoil. In the less eroded areas, the surface layer is grayish-brown to pale-yellow sandy loam, but the color ranges to strong brown and the texture ranges to clay loam in the more eroded spots. The upper part of the subsoil is friable sandy clay loam that is 6 to 10 inches thick. The lower part is 14 to 40 inches thick. It consists of yellow to reddish-brown clay that has common mottles of red and light gray and is very firm when moist and very plastic when wet.

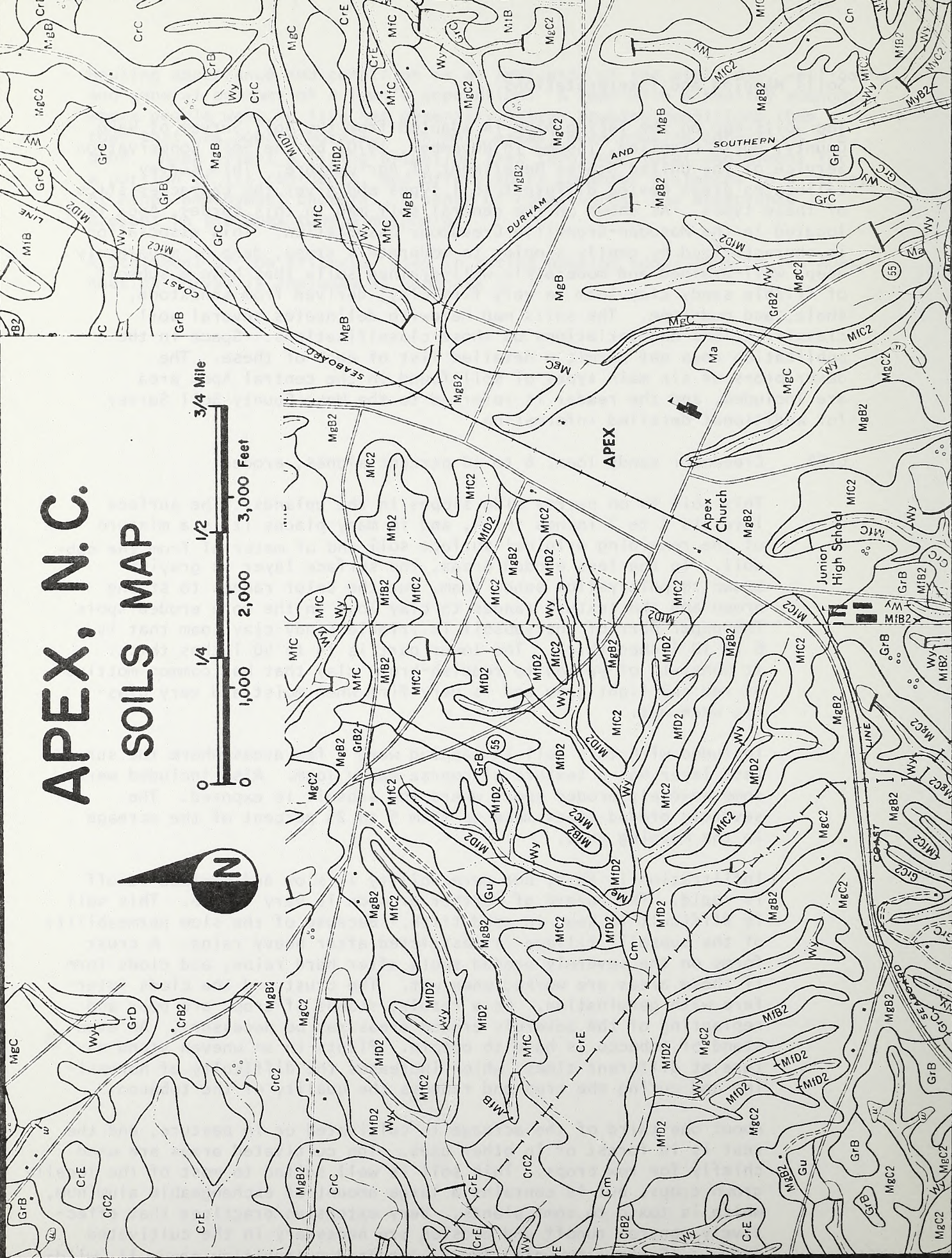
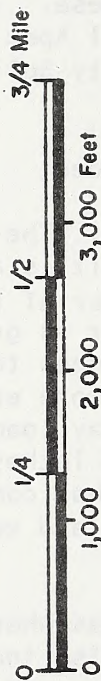
Included with this soil in mapping were a few areas where the surface layer has a texture of coarse sandy loam. Also included were some severely eroded spots where the subsoil is exposed. The severely eroded spots make up from 5 to 25 percent of the acreage in the mapping unit.

Infiltration is fair, but permeability is slow and surface runoff is rapid. The hazard of further erosion is very severe. This soil is difficult to keep in good tilth. Because of the slow permeability of the subsoil, tillage is restricted after heavy rains. A crust forms on the severely eroded spots after hard rains, and clods form if those areas are worked when wet. The crust and the clods interfere with germination. As a result, stands of crops are poor and replanting of the severely eroded areas may be necessary. An even stand of tobacco is hard to obtain. Plants in an uneven stand mature at different times, which increases the difficulty of harvesting and curing the crop and reduces the quality of the tobacco.

About one-third of the acreage is cultivated or in pasture, and the rest is in forest or in other uses. The cultivated areas are used chiefly for row crops. This soil is well suited to most of the locally grown crops, but it contains a large amount of exchangeable aluminum, which is toxic to some plants. Very extensive practices that effectively control runoff and erosion are necessary in the cultivated areas. (Capability unit IVe-3, woodland suitability group 11, wildlife suitability group 1)

APEX, N.C.

SOILS MAP



SOIL LEGEND

(see the Soils Map on the preceding page)

The first capital letter is the initial one of the soil name. A second capital letter, A, B, C, D, E, or F, shows the slope. Most symbols without a slope letter are those of nearly level soils or land types, but some are for land types that have a considerable range of slope. The number, 2 or 3, in a symbol shows that the soil is eroded or severely eroded.

SYMBOL	NAME
AfA	Altavista fine sandy loam, 0 to 4 percent slopes
AgB	Appling gravelly sandy loam, 2 to 6 percent slopes
AgB2	Appling gravelly sandy loam, 2 to 6 percent slopes, eroded
AgC	Appling gravelly sandy loam, 6 to 10 percent slopes
AgC2	Appling gravelly sandy loam, 6 to 10 percent slopes, eroded
ApB	Appling sandy loam, 2 to 6 percent slopes
ApB2	Appling sandy loam, 2 to 6 percent slopes, eroded
ApC	Appling sandy loam, 6 to 10 percent slopes
ApC2	Appling sandy loam, 6 to 10 percent slopes, eroded
ApD	Appling sandy loam, 10 to 15 percent slopes
AsB	Appling fine sandy loam, 2 to 6 percent slopes
AsB2	Appling fine sandy loam, 2 to 6 percent slopes, eroded
AsC	Appling fine sandy loam, 6 to 10 percent slopes
AsC2	Appling fine sandy loam, 6 to 10 percent slopes, eroded
Au	Augusta fine sandy loam
Bu	Buncombe soils
CeB	Cecil sandy loam, 2 to 6 percent slopes
CeB2	Cecil sandy loam, 2 to 6 percent slopes, eroded
CeC	Cecil sandy loam, 6 to 10 percent slopes
CeC2	Cecil sandy loam, 6 to 10 percent slopes, eroded
CeD	Cecil sandy loam, 10 to 15 percent slopes
CeF	Cecil sandy loam, 15 to 45 percent slopes
CgB	Cecil gravelly sandy loam, 2 to 7 percent slopes
CgB2	Cecil gravelly sandy loam, 2 to 6 percent slopes, eroded
CgC	Cecil gravelly sandy loam, 6 to 10 percent slopes
CgC2	Cecil gravelly sandy loam, 6 to 10 percent slopes, eroded
ClB3	Cecil clay loam, 2 to 6 percent slopes, severely eroded
ClC3	Cecil clay loam, 6 to 10 percent slopes, severely eroded
ClE3	Cecil clay loam, 10 to 20 percent slopes, severely eroded
Cm	Chewacla soils
Cn	Colfax sandy loam
Co	Congaree fine sandy loam
Cp	Congaree silt loam
CrB	Creedmoor sandy loam, 2 to 6 percent slopes
CrB2	Creedmoor sandy loam, 2 to 6 percent slopes, eroded
CrC	Creedmoor sandy loam, 6 to 10 percent slopes
CrC2	Creedmoor sandy loam, 6 to 10 percent slopes, eroded
CrE	Creedmoor sandy loam, 10 to 20 percent slopes
CtB	Creedmoor silt loam, 2 to 6 percent slopes
CtC	Creedmoor silt loam, 6 to 10 percent slopes

SYMBOL

NAME

DuB	Durham loamy sand, 2 to 6 percent slopes
DuB2	Durham loamy sand, 2 to 6 percent slopes, eroded
DuC	Durham loamy sand, 6 to 10 percent slopes
DuC2	Durham loamy sand, 6 to 10 percent slopes, eroded
EnB	Enon fine sandy loam, 2 to 6 percent slopes
EnB2	Enon fine sandy loam, 2 to 6 percent slopes, eroded
EnC	Enon fine sandy loam, 6 to 10 percent slopes
EnC2	Enon fine sandy loam, 6 to 10 percent slopes, eroded
EnD2	Enon fine sandy loam, 10 to 15 percent slopes, eroded
FaB	Faceville sandy loam, 2 to 6 percent slopes
FaB2	Faceville sandy loam, 2 to 6 percent slopes, eroded
FaC2	Faceville sandy loam, 6 to 10 percent slopes, eroded
GeB	Georgeville silt loam, 2 to 6 percent slopes
GeB2	Georgeville silt loam, 2 to 6 percent slopes, eroded
GeC	Georgeville silt loam, 6 to 10 percent slopes
GeC2	Georgeville silt loam, 6 to 10 percent slopes, eroded
GeD2	Georgeville silt loam, 10 to 15 percent slopes, eroded
Go	Goldsboro sandy loam
GrB	Granville sandy loam, 2 to 6 percent slopes
GrB2	Granville sandy loam, 2 to 6 percent slopes, eroded
CrC	Granville sandy loam, 6 to 10 percent slopes
CrC2	Granville sandy loam, 6 to 10 percent slopes, eroded
GrD	Granville sandy loam, 10 to 15 percent slopes
Gu	Gullied land
HeB	Helena sandy loam, 2 to 6 percent slopes
HeB2	Helena sandy loam, 2 to 6 percent slopes, eroded
HeC	Helena sandy loam, 6 to 10 percent slopes
HeC2	Helena sandy loam, 6 to 10 percent slopes, eroded
HeD	Helena sandy loam, 10 to 15 percent slopes
HrB	Herndon silt loam, 2 to 6 percent slopes
HrB2	Herndon silt loam, 2 to 6 percent slopes, eroded
HrC	Herndon silt loam, 6 to 10 percent slopes
HrC2	Herndon silt loam, 6 to 10 percent slopes, eroded
HrD2	Herndon silt loam, 10 to 15 percent slopes, eroded
HrE	Herndon silt loam, 15 to 25 percent slopes
LdB2	Lloyd loam, 2 to 6 percent slopes, eroded
LdC2	Lloyd loam, 6 to 10 percent slopes, eroded
LdD2	Lloyd loam, 10 to 15 percent slopes, eroded
LoB	Louisburg loamy sand, 2 to 6 percent slopes
LoC	Louisburg loamy sand, 6 to 10 percent slopes
LoD	Louisburg loamy sand, 10 to 15 percent slopes
LwB	Louisburg-Wedowee complex, 2 to 6 percent slopes
LwB2	Louisburg-Wedowee complex, 2 to 6 percent slopes, eroded
LwC	Louisburg-Wedowee complex, 6 to 10 percent slopes
LwC2	Louisburg-Wedowee complex, 6 to 10 percent slopes eroded
Ly	Lynchburg sandy loam

SYMBOL

NAME

Ma	Made land
MdB2	Madison sandy loam, 2 to 6 percent slopes, eroded
MdC2	Madison sandy loam, 6 to 10 percent slopes, eroded
MdD2	Madison sandy loam,, 10 to 15 percent slopes, eroded
MdE2	Madison sandy loam, 15 to 25 percent slopes, eroded
Me	Mantachie soils
MfB	Mayodan sandy loam, 2 to 6 percent slopes
MfB2	Mayodan sandy loam, 2 to 6 percent slopes, eroded
MfC	Mayodan sandy loam, 6 to 10 percent slopes
MfC2	Mayodan sandy loam, 6 to 10 percent slopes, eroded
MfD2	Mayodan sandy loam, 10 to 15 percent slopes, eroded
MfE	Mayoday sandy loam, 15 to 25 percent slopes
MgB	Mayodan gravelly sandy loam, 2 to 6 percent slopes
MgB2	Mayodan gravelly sandy loam, 2 to 6 percent slopes, eroded
MgC	Mayodan gravelly sandy loam, 6 to 10 percent slopes
MgC2	Mayodan gravelly sandy loam, 6 to 10 percent slopes, eroded
MyB	Mayodan silt loam, thin, 2 to 6 percent slopes
MyB2	Mayodan silt loam, thin, 2 to 6 percent slopes, eroded
MyC	Mayodan silt loam, thin, 6 to 10 percent slopes
MyC2	Mayodan silt loam, thin, 6 to 10 percent slopes, eroded
MyD	Mayodan silt loam, thin, 10 to 15 percent slopes
NoA	Norfolk loamy sand, 0 to 2 percent slopes
NoB	Norfolk loamy sand, 2 to 6 percent slopes
NoB2	Norfolk loamy sand, 2 to 6 percent slopes, eroded
NoC	Norfolk loamy san, 6 to 10 percent slopes
NoC2	Norfolk loamy sand, 6 to 10 percent slopes, eroded
OrB	Orangeburg laomy sand, 2 to 6 percent slopes
OrB2	Orangeburg loamy sand, 2 to 6 percent slopes, eroded
OrC2	Orangeburg loamy sand, 6 to 10 percent slopes, eroded
PkC	Pinkston sandy loam, 0 to 10 percent slopes
PkF	Pinkston sandy loam, 10 to 45 percent slopes
Ps	Plummer sand
Ra	Rains fine sandy loam
Ro	Roanoke fine sandy loam
Sw	Swamp
VaB	Vance sandy loam, 2 to 6 percent slopes
VaB2	Vance sandy loam, 2 to 6 percent slopes, eroded
VaC2	Vance sandy loam, 6 to 10 percent slopes, eroded
WaA	Wagram loamy sand, 0 to 2 percent slopes
WaB	Wagram loamy sand, 2 to 6 percent slopes
WaC	Wagram loamy sand, 6 to 10 percent slopes
WgA	Wagram-Troup sands, 0 to 4 percent slopes
Wh	Wahee fine sandy loam
WkC	Wake soils, 2 to 10 percent slopes
WkE	Wake soils, 10 to 25 percent slopes

SYMBOL

NAME

WmB	Wedowee sandy loam, 2 to 6 percent slopes
WmB2	Wedowee sandy loam, 2 to 6 percent slopes, eroded
WmC	Wedowee sandy loam, 6 to 10 percent slopes
WmC2	Wedowee sandy loam, 6 to 10 percent slopes, eroded
WmD2	Wedowee sandy loam, 10 to 15 percent slopes, eroded
WmE	Wedowee sandy loam, 15 to 25 percent slopes
Wn	Wehadkee silt loam
Wo	Wehadkee and Bibb soils
WsB	White Store sandy loam, 2 to 6 percent slopes
WsB2	White Store sandy loam, 2 to 6 percent slopes, eroded
WsC	White Store sandy loam, 6 to 10 percent slopes
WsC2	White Store sandy loam, 6 to 10 percent slopes, eroded
WsE	White Store sandy loam, 10 to 20 percent slopes
WtB	White Store silt loam, 2 to 6 percent slopes
WvD3	White Store clay loam, 2 to 15 percent slopes, severely eroded
WwC	Wilkes soils, 2 to 10 percent slopes
WwE	Wilkes soils, 10 to 20 percent slopes
WsF	Wilkes soils, 20 to 45 percent slopes
WxE	Wilkes stony soils, 15 to 25 percent slopes
Wy	Worsham sandy loam

GrB Granville sandy loam, 2 to 6 percent slopes

This soil is on broad, smooth interstream divides in the uplands. It has a dark-brown or brown to pale-yellow surface layer that is 7 to 20 inches thick. The subsoil is 26 to 50 inches thick and consists of yellow to strong-brown, friable clay loam or sandy clay loam, with common mottles of yellowish red.

Included with this soil in mapping are a few areas where the slope is less than 2 percent. Also included are areas where from 20 to 50 percent of the surface is covered with gravel and from 20 to 50 percent of the surface layer is gravel.

Infiltration is good, and surface runoff is medium. The hazard of erosion is moderate. This soil is easy to keep in good tilth and can be worked throughout a wide range of moisture content.

This soil is well suited to most of the locally grown crops, and most of the acreage is cultivated or in pasture; Row crops, especially tobacco and cotton, are the main crops grown. Practices that effectively control run-off and erosion are needed in the cultivated areas. (Capability unit 11e-1, woodland suitability group 5, wildlife suitability group 1)

GrB2 Granville sandy loam, 2 to 6 percent slopes, eroded

This soil is on broad, smooth interstream divides in the uplands. Its surface layer is 6 to 8 inches thick. In many places it is a mixture of the remaining original surface soil and of material from the subsoil. In the less eroded areas, the surface layer is brown to pale-yellow sandy loam, but the color ranges to strong brown and the texture ranges to sandy clay loam in the more eroded spots. The subsoil is 26 to 50 inches thick and is yellow to strong-brown, friable clay loam or sandy clay loam that has common mottles of yellowish red.

Included with this soil in mapping are some areas where 20 to 50 percent of the surface layer is gravel.

MgB Mayodan gravelly sandy loam, 2 to 6 percent slopes

This soil is on broad, smooth interstream divides in the uplands. Its surface layer is 7 to 15 inches thick. It is grayish-brown to yellowish-brown gravelly sandy loam that has a content of gravel of 15 to 30 percent. The subsoil is 26 to 50 inches thick and consists of yellowish-red to strong-brown, firm clay loam to clay, with common mottles of red and brown.

Infiltration is good, and surface runoff is medium. The hazard of erosion is moderate. Because of the high content of gravel, many areas of this soil are difficult to till, but tillage can be performed throughout a wide range of moisture content.

About half of the acreage is cultivated or in pasture, and the rest is in forest or in other uses. The cultivated areas are used chiefly for row crops, especially tobacco and cotton, but this soil is well suited to all the locally grown crops. Practices that effectively control runoff and erosion are needed in the cultivated areas. (Capability unit 11e-1, woodland suitability group 5, wildlife suitability group 1)

MgB2

Mayodan gravelly sandy loam, 2 to 6 percent slopes, eroded

This soil is on broad, smooth interstream divides in the uplands. Its surface layer is 4 to 7 inches thick. In many places it is a mixture of the remaining original surface soil and of material from the subsoil. In the less eroded areas, the surface layer is grayish-brown to light yellowish-brown gravelly sandy loam, but the color ranges to strong brown and the texture ranges to gravelly sandy clay loam in the more eroded spots. From 15 to 30 percent of the surface layer is gravel. The subsoil is 26 to 50 inches thick and consists of yellowish-red to strong-brown, firm clay loam to clay, with common mottles of red and brown.

Wy

Worsham sandy loam (0 to 4 percent slopes)

This is the only soil of the Worsham series mapped Wake County. It occurs at the heads of drainageways on foot slopes, and in slight depressions in the upland. The surface layer is very dark brown or brown sandy loam 8 to 20 inches thick. The subsoil is 24 to 40 inches thick and consists of gray, firm silty clay loam or sandy clay, with common mottles of strong brown to pale-yellow.

Infiltration is good, and surface runoff is slow ponded. Permeability is moderately slow. Where this surface has been drained, it is easy to keep in good tilth, but tillage may be restricted after hard rains.

If this soil is cleared and properly drained, it is suitable to corn, soybeans, and pasture. Most of the acreage is forest, but some of it is cultivated or in pasture. (Capability unit IVx-1, woodland suitability group 2, wildlife suitability group 3).

A general analysis of the soil types in Apex shows that a majority of the town is built on Mayodan type soil. Mayodan soils are characterized as fair sources of topsoil or roadfill, and have only slight limitations for the siting of homes. Because of a moderate percolation rate, there is moderate limitation on the use of these soils for septic tank absorption fields. There is only slight limitation in the location of recreation facilities on these soils, but their frost susceptibility imposes a limitation on highway location through them.

Another soil type existing in the Apex area is the Granville classification. Granville soils have only slight limitation for home sites, septic tank absorption fields, recreation facilities, and intensive play areas. They are a poor source of topsoil or roadfill but highway location is affected in that slopes cut through them are unstable.

Two soil types in the Apex planning area give problems with septic tanks. These are the Creedmoor and Worsham types. Some areas of Worsham soil have a shallow depth to water table that restricts septic tank function. Creedmoor soils usually have a deeper water table but become plastic when wet and obstruct the passage of septic tank effluent.

Large areas of Creedmoor type soil exist in the watershed area of the Apex Reservoir in the northeastern sector of the planning area. The low permeability and rapid runoff characteristics of this soil make septic tanks particularly dangerous in this area because septic tank malfunctions can contaminate the Town's water supply. In 1975, several rezoning requests were submitted by property-owners in this Creedmoor soil area. Rezoning action in this area should not allow increased population density that would rely on septic tank waste disposal. A sewer system should be constructed in this area before development approaching urban density should be considered. Future elimination of the local Apex water supply would make this situation less dangerous, but a sewer system would remain desirable for urban density development on this Creedmoor soil type.

Creedmoor soils also possess high shrink-swell potential. Foundations built in Creedmoor soils often should have additional steel reinforcing installed in their concrete footings in order to prevent cracking and uneven settling due to this shrink-swell potential. Land capability analysis based in part on soil capability and potential will be undertaken as part of the next phase of the Apex Planning Program.

In one area to the south of Apex along Highway 55, where industrial zoning has been established, the predominant soil is Creedmoor sandy loam. This particular Creedmoor loam with two to six percent slopes has severe limitations for the construction of dwellings and for installation of septic tank filter fields. The high shrink-swell potential of the soil makes for residential construction problems and the extremely slow permeability limits septic tank use. Such soils also have high corrosivity for uncoated steel and concrete. Because of poor drainage, texture, and acidity, steel and concrete should be protected. Because of these factors it is unlikely that residences would ever be built in this area. Under the industrial classification, engineers for any facility proposed on this should be alerted to and be conscious of the soil limitations. Particularly they must be alert to the shrink-swell factor and the problems of paving over such areas. Also, particular attention should be paid to the need for enlarged cross-section and reinforcing of building footings.

Any land use that would propose subsurface disposal of sewage wastes in this Creedmoor loam area should be subject to scrutiny by the Wake County Health Department. Preferably, land uses in this soil-type area should be confined to low sewage volume uses. As some of this soil-type area lies down-slope from the Apex sewage treatment facility, a pumping station for injection of collected sewage from this area into the Apex sewage treatment system would be an advisable future project.

Chapter III

POPULATION AND ECONOMY

The title is appropriate to this section because the two - population and economy - invariably go hand in hand. When the economy of a town, including all factors such as industry, commercial activity, and general physical environment is healthy, a town and its environs tend to attract residents and increase its population. This effect is apparent not only in Apex but the entire Raleigh municipal complex as well. These Wake County towns, are experiencing economic and population growth in direct proportion to their distance from the larger central city. Cary, positioned closet to Raleigh, has experienced tremendous growth over the last few years. The Apex radius from the Raleigh hub is not much greater than Cary's. Other towns, such as Fuquay-Varina, Zebulon, and Wendell have also been affected, but to a lesser degree because of their greater distance from the central city.

This effect results from Raleigh's position as the capital city of the State of North Carolina, and as the northern anchor of the Piedmont Industrial Crescent. The Raleigh area, and similarly the Apex area, has been increasingly attractive as a place to work and live in.

A climate of optimism and growth exists in Apex. Residential development in the Apex area has generally been done in an environmentally conscious manner. Large subdivisions have not depended on septic tank waste disposal, and a degree of trees and foliage has been maintained throughout most subdivisions. Industrial locations in the Apex area are generally environmentally conscious, low-polluting facilities with attractive buildings.

As shown in Table 1 on page 19, Apex is the sixth largest municipality in Wake County. Table 1 also indicates it had the second highest growth rate in Wake County.

The Cary growth rate of 129.0 percent during the 1960's was the largest growth factor in Wake County. This large growth factor was perhaps due to the availability of municipal water and sewer and because of a favorable utilities extension policy on the part of the Town of Cary. When the Town of Apex joins the Raleigh municipal complex for the provision of both water and sewer utilities, a suitable utilities extension policy must be devised for the Town of Apex.

Chart 1 on the page following Table 1 is a graphic presentation of the figures in Table 1, giving the background of five previous censuses. In the time between 1910 and 1950, the smaller towns in Wake County experienced moderate steady growth for the most part. In the 1950 to 1960 census period, the towns of Fuquay-Varina, Garner, and Cary experienced unusual growth in comparison to the more steady growth rates of the other towns in Wake County. In the 1960 to 1970 census period the towns of Cary and Garner have continued to grow in population at accelerated rates, while the Town of Fuquay-Varina has returned to a more moderate growth rate. During the 1960's, however, Apex grew at a faster rate than Garner, making Apex the second-fastest developing area in Wake County.

Table 1

POPULATIONS - WAKE COUNTY AND OTHER TOWNS

1960-1970 CENSUS

Wake County Municipalities	1970 Population	1960 Population	% Change 1960-1970
Raleigh	123,793	93,931	31.8
Cary	7,686	3,356	129.0
Garner	4,923	3,389	42.7
Fuquay-Varina	3,576	3,389	5.5
Wake Forest	3,148	2,664	18.2
Apex	2,234	1,368	63.3
Wendell	1,929	1,620	19.1
Zebulon	1,839	1,534	19.9
Knightdale	815	622	31.0
Rolesville	533	538	48.9
Morrisville	209	222	(-)5.9

Source: U.S. Department of Commerce, Bureau of the Census (final corrections reported in "Population Note No. 1" by N.C. Department of Administration, Office of State Planning, July, 1975)

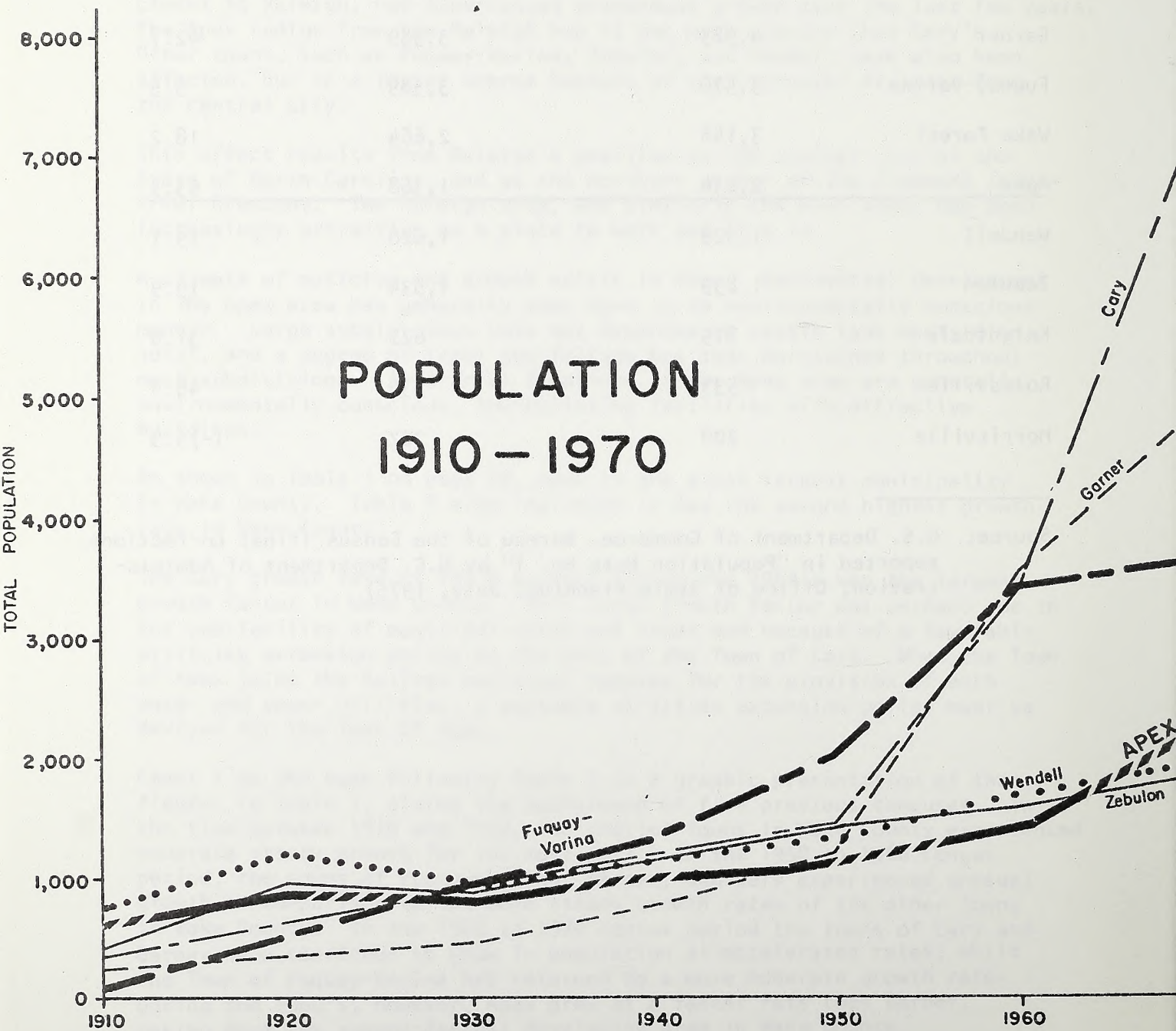


Table 2 on Page 22 is excerpted from the 1970 Census data. Selected population characteristics of the Town of Apex are compared with those of Wake County and the State of North Carolina.

This table indicates that Apex's 63.3% growth factor since 1960 was significantly greater than the growth percentage for Wake County, and was more than 5 times larger than the growth factor for the State of North Carolina as a whole.

Table 2 also indicates the percentages of 1970 population that were in different age groups. In the under-18 age group, the percentage for Apex is nearly the same as the percentage for Wake County and North Carolina as a whole. In the middle group, that is the ages between 18 and 64, Apex has fewer persons when compared with Wake County, and correspondingly more persons in the over 65 age group than Wake County as a whole. When compared to the population of the entire State, the same lesser number of 18-64 year olds and greater number of 65+ persons is apparent, though not to the same degree as the difference between Apex population and Wake County population. Perhaps this would indicate that a portion of the population of wage-earning age has moved from Apex during these middle years, and is returning to Apex at time of retirement. Another explanation is that the population figures given in the census are compiled for the area inside the Apex town limits only. Much housing development has occurred near Apex in the area that is not within the town boundaries. Often newly developed areas are populated by younger middle-age persons. If population figures were available for the entire developed area in and surrounding Apex, perhaps the age group populations would be closer to the State and/or national averages.

The median age of the Apex population is 28 years. This figure is higher than the median age for Wake County or for North Carolina as a whole, indicating that, within the Apex town limits, the population is generally older than elsewhere in the County and the State.

The number of persons per household in Apex is lower than the figures for Wake County and North Carolina as a whole. This probably reflects a large number of older households from which a family member has traveled elsewhere to reside. Younger households, with all of their children high school age or under, would tend to have a higher person-per-household average than the older families that have lost members to other localities. Newer housing subdivisions, such as those recently constructed in Apex, often have a preponderance of these younger families in them. If this is true of the newer Apex subdivision, the median age and age grouping of the residents of the older sections of Apex must be appreciably higher than the general average. With the newer subdivisions brought within the Apex town limits (as they will be for the 1980 census period) the median age will perhaps be lower, and the average number of persons per household may be higher than in 1970.

Table 2

COMPARATIVE POPULATION CHARACTERISTICS - 1970 CENSUS

	Apex	Wake County	North Carolina
1970 Population	2,234	229,006	5,082,059
% Change since 1960	63.3	35.4	11.5
Under 18	34.0	33.2	34.6
% 18-64	56.0	60.1	57.2
% 65+	10.0	6.7	8.1
Median Age	28.0	25.7	26.5
Persons per Household	3.11	3.16	3.25

Projecting population change for a town the size of Apex is difficult. Population projections can be more confidently done for larger geographic areas. The preceding chart indicates that some of the towns in Wake County have grown at a much faster rate than the central city Raleigh during the last census period, and have not been consistent in their growth trends. Wake County taken as a whole, including Raleigh and the smaller towns, has experienced a steadier, less erratic growth trend than the smaller towns within it. Some of the growth percentages experienced by the smaller towns have doubled and even tripled the county-wide population growth rate. This very much complicates the task of projecting future populations for Apex.

The table on page 24 has as its source the Office of Business Economics and the Economic Research Service (OBERS) projections for Wake County. In an attempt to project a growth range for Apex, two calculations have been undertaken.

The lower, more conservative, projections of Apex's population are based on the assumption that Apex will grow at the same rate Wake County is expected to grow. Apex's population change, however, has been much more rapid than the county-wide change in previous census periods. Had the town limits encompassed more of the urban development area around Apex at the time of the 1970 census - as they do now - the Apex population growth percentage would have been more than double Wake County's. Therefore, another projected growth rate was calculated for the Town of Apex. These second, less conservative, projections were calculated by assuming an Apex population growth rate double that of the OBERS growth rate of Wake County.

These two projections methods should furnish a range for each projected census year. Many complex factors influence population change in general development. Apex's present geographic and economic status indicate an expansive future. A projected population of 4,565 persons in the year 2020 is probably conservative, while the projection of 8,420 using the higher projected rate is less conservative, but it could be equally reasonable if present growth and development trends continue.

The higher projected growth rate, when compared with the experience of other towns in the Triangle J Region seems to be reasonable. The population of Carrboro in Orange County (not many miles distant from Apex) has grown from less than 2,000 to over 8,000 in less than twenty years. The Town of Cary, located very near Apex, has had almost explosive population growth. In light of these experiences, a projected population of 8,420 persons in Apex for the year 2020 could be a conservative figure.

Population Projections

	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>
Wake County						
Population (a)	229,006	292,200	354,700	396,300	434,300	468,300
Wake County						
% Change	35.4%	27.6%	21.4%	11.7%	9.6%	7.8%
Apex						
Projection						
if at same	2,234	2,850	3,460	3,865	4,235	4,565
% Change as						
Wake County						
Apex						
if growth						
is double						
Wake County's						
% Change		3,465	4,950	6,110	7,285	8,420

Sources: 1970 data from U.S. Department of Commerce, Bureau of the Census (final corrections reported in "Population Note No. 1" by N.C. Department of Administration, Office of State Planning, July, 1975).

Projections for Wake County are by N.C. Department of Natural and Economic Resources, Division of Environmental Management, 1975 (Disaggregation of Projection of N. C. Population by U.S. Department of Commerce and U.S. Department of Agriculture:OBERS-E)

Chapter IV

WATER AND SEWER

As in most communities, the original water supply in Apex relied on wells dug or drilled to the water-bearing strata below the earth's surface. Because of proximity to the Jonesboro Geologic Fault, wells are notoriously unreliable in the Apex area. Wells must often be sunk to great depths before suitable production volumes are achieved, and often the material through which wells are sunk has been subject to cave-in.

The Town of Apex years ago abandoned wells as a source of municipal water supply. Through construction of an impoundment and a water treatment plant to the northeast of town, Apex secured a surface water supply sufficient for many years of its development. This arrangement was feasible in that the watershed area above this impoundment was sparsely populated, with large portions of it in wooded, vegetative cover. This surface impoundment still serves part of the town's needs.

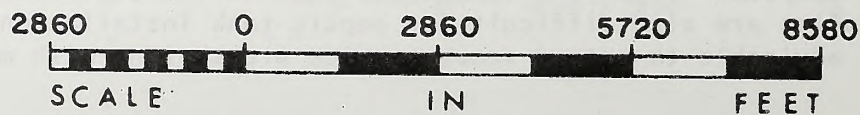
In recent years, however, the Apex impoundment has had insufficient safe yield to ensure a water supply for the growing Apex population. When this fact endangered development and progress, the Town of Apex sought - and was allowed - a connection with the Raleigh water supply system. The Raleigh water supply system supplements the Apex impoundment in supplying potable water for the Town of Apex. In the future, this connection will be relied on more heavily because of the limitations of the Apex impoundment as a source of additional water for increased population and development.

Also, increased development pressure and construction of residences and other facilities in the Apex impoundment watershed is slowly decreasing the quality of the water impounded there, and increasing the cost of treating it. Another parallel effect - silting of the impoundment - has also been accelerated by this watershed development. Because of the age of the impoundment, the reservoir capacity had already been impaired by silt accumulation, and the storage capacity and safe yield reduced. Faced with rising treatment costs and lessened reservoir capacity, the Town of Apex should phase out use of this impoundment as a water supply for the Town and should come to rely on the Raleigh treated water as its sole future source.

Other towns in Wake County have had similar experiences. The Town of Cary has only recently discontinued use of wells as its water source, and has come to rely on the Raleigh water system. Because water treatment can be accomplished less expensively when larger volumes are treated, the Raleigh system will be able to treat water volumes economically for Cary, Apex, and other municipal customers.

Because groundwater is unreliable in the Apex area, developed areas located outside the town limits could realize substantial benefit from annexation by the Town. A utilities extension policy emphasizing extension of water supply and sewerage system facilities simultaneously to developing areas should be adopted. Often the same areas that will not yield adequate well water supplies are also difficult for septic tank installation and use, making it advisable to extend sewer service areas along with municipal water

APEX, N.C.



EXISTING MAJOR SEWER LINES

supply in order to prevent health problems from malfunctioning septic tanks. The areas of Creedmoor soils to the northeast of the Apex plan-area illustrate this problem. Since Creedmoor soils do not readily absorb the effluent from septic tanks, and since this soil type is near the water supply reservoir, additional development in the area could cause a serious public health hazard. Indeed, the existing septic tanks in the area are already a public health problem. If the municipal water supply system were extended to the area without extending the public sewer system, the increased use of water (which often results when individual wells are supplanted by public water supply) could greatly compound the public health problem, since more wastewater would go through the septic tanks.

The Town of Apex has recently placed under contract a 500,000-gallon elevated water storage tank. This tank, located at the intersection of the Old Raleigh Road and Laura Duncan Road, will assure a reserve supply in the Town of Apex. Tank capacity of this size serves to distribute the peak demand placed on water pumping facilities, allowing reserve water levels to be re-attained during periods of low demand. Fire flows can also be better maintained in the event of a fire or other disaster. When the tank is in service, the town should not have to rely on pumping capacity alone to meet such an emergency.

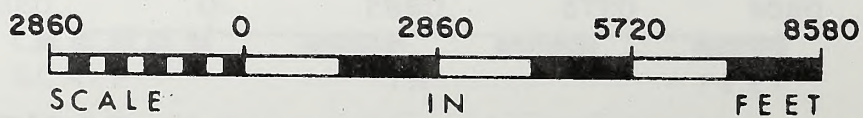
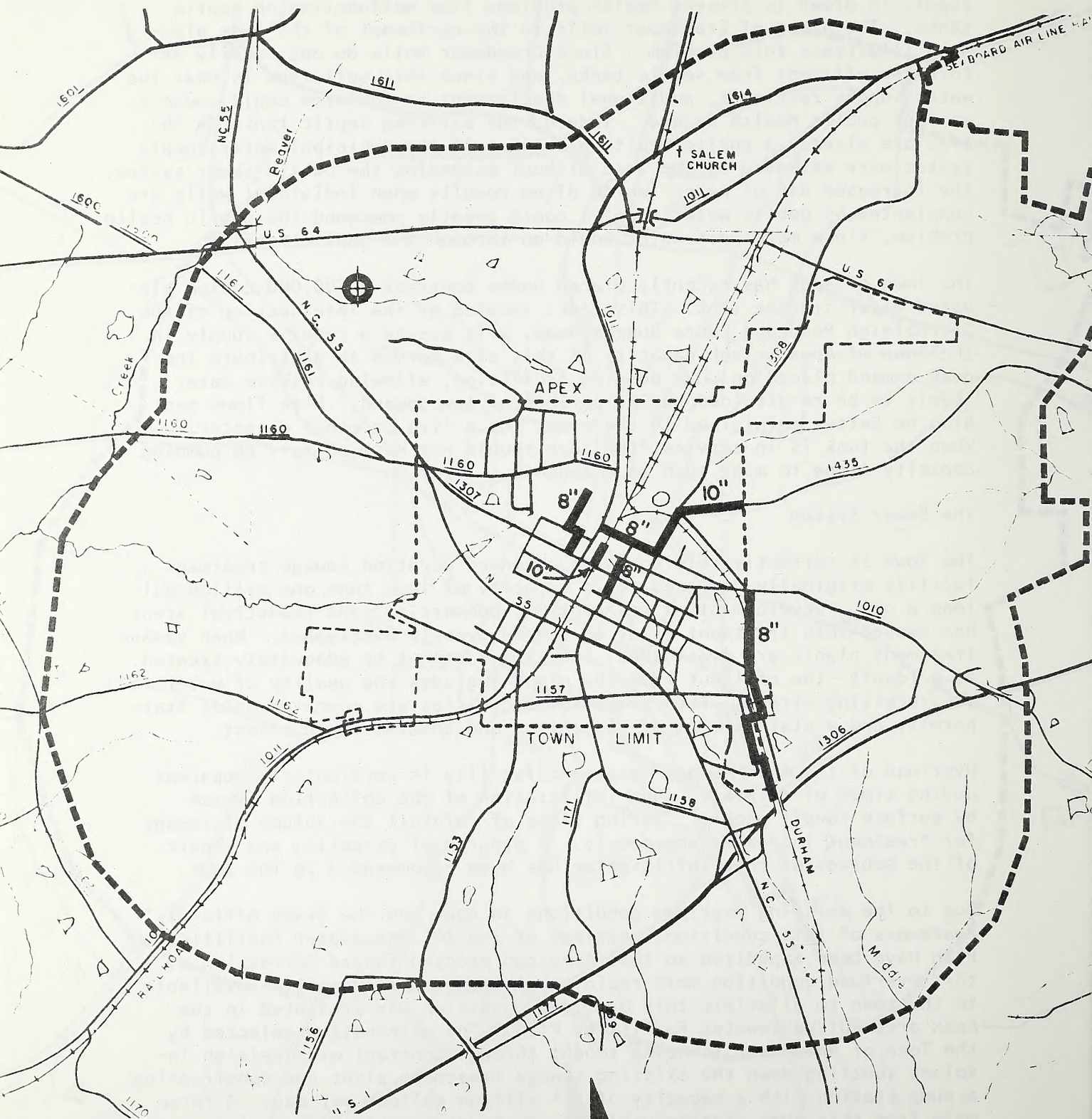
The Sewer System

The Town is currently relying on an extended aeration sewage treatment facility originally designed for a capacity of less than one million gallons a day. Development of residential, commercial, and industrial areas has caused this treatment plant to become grossly overloaded. When sewage treatment plants are overloaded, the sewage cannot be adequately treated. As a result, the effluent from the plant degrades the quality of water in the receiving stream. Such treatment facilities are operated under State permit, and a state system of regulation and control is in effect.

Overload of the Apex sewage treatment facility is particularly apparent during times of rainfall, when infiltration of the collection system by surface runoff occurs. During times of rainfall the volume of sewage for treatment increases enormously. A program of detection and repair of the sources of this infiltration has been recommended to the town.

Due to the existing overload conditions in Apex and the State officials' awareness of this condition, portions of the 201 Wastewater Facilities Plan have been expedited so that Apex can proceed toward correction of this overload condition more rapidly. A study of alternatives available to the town to alleviate this overload condition was presented in the Apex area 201 Wastewater Facilities Plan. The alternative selected by the Town of Apex that is being sought through contract with Raleigh involves shutting down the existing sewage treatment plant and constructing a pump station with a capacity of 3.1 million gallons per day. A force main from this pump station would be constructed along Highway 1 east to a point where it would tie into the Walnut Creek interceptor of the Raleigh sewer system. A program would be undertaken at the same time to lessen the infiltration of storm water into the system.

APEX, N.C.



EXISTING MAJOR WATER LINES

Construction of such a force main and connection to the Raleigh sewer system would place the Town of Apex in a position to allow controlled land development and its attendant sewer connections for several years into the future. Pumping capacity in the amount of 3.1 million gallons per day for this sewage relay facility is in excess of current demand and would allow substantial increased future volume.

The present location of the Apex sewage treatment facility, also the future location of the pump forwarding the Apex sewage to Raleigh, would not allow gravity collection of sewage flow from the entire industrial area south of the Town. The industries currently located in this downstream area are fortunately industries with low sewage loads. Because this area - unfortunately coincidentally - is also an area with severe limitations for septic tank use, industries with large sewage volumes should avoid this area. If an industry with large sewage volume is located in this area, it should be required to tie in the sewer system through a force main connection. The Apex planning board and town board should be particularly attentive to the areas where the soils do not adequately absorb septic tank effluent, and should require Wake County Health Department approval of sewage disposal plans before considering zone changes or permit approvals for this area.

Summary

The Town of Apex is proceeding with all speed toward joining the Raleigh municipal water supply and sewage collection system. Development in Apex over the past fifteen years indicates that the existing water supply facilities and the sewage collection and treatment facilities have become overtaxed by development. Because of its geographic location, and of the economies of large-volume water and sewage treatment, the Town of Apex has chosen to eliminate future operation of its own facilities and to join the more efficient large-volume operations conducted by the City of Raleigh. The elevated water storage tank and the reserve sewage pumping capacity achieved through completion of these utility connections with Raleigh will put Apex in a position to accept a large variety of development proposals.

Water and sewer extension policies along with land use regulation through subdivision regulations and a zoning ordinance should be enacted and enforced in order to effectively handle this development.

Because Raleigh's water and sewer systems have finite capacities, the contract with Raleigh must have limitations. Therefore, Apex should be selective in encouraging new industry in order not to allow a large water user to pre-empt an inordinate share of that capacity at the expense of other desirable users. A textile dyeing and finishing plant, for example, could tie up a substantial portion of the water and sewer capacity while supplying relatively few jobs. This could limit residential or commercial development that would otherwise use the pre-empted capacity of the utility systems.

RECREATION

The recreation program in Apex is run by unsalaried volunteers. A commendable volunteer program has successfully sponsored little league baseball and other youth-oriented activities using funds provided by the town and the United Fund. A five member Recreation Commission comprised of volunteers oversees this program.

Although the volunteer program has been very worthwhile, the recreation needs of Apex have grown to such an extent that a municipally sponsored, professionally conducted program is needed. A modern recreation program encompasses a variety of activities serving a variety of age groups, a type of effort that is difficult to mobilize using volunteer organizers. Every age group has a need for recreational programs and facilities. If the mature age groups are able to find recreational opportunities in the town rather than having to travel elsewhere for them, a stronger, healthier sense of community can result.

Therefore, Apex should plan and establish parks and a recreation department under the town administration. This recreation effort should employ persons qualified to organize and conduct a diversified recreational program suited to the desires and needs of all age groups seeking larger recreation budget items.

The present Recreation Commission could continue as directors and advisors to such a town effort, contributing valuable experience and knowledge to the effort. Other towns in similar situations have had favorable experience with recreation advisory commissions of more than five members. Usually a 7-member commission functions well. Varied interest and age groups should be represented on this important commission. A 7-member group allows these varied activity interest and age groups better representation. Such a Recreation Commission should be appointed by the Town Board for fixed staggered terms and guided by a recreation ordinance setting forth their duties, responsibilities, authority, and limitations.

While renewing the existing Recreation Commission and appointing new members to it, the Town Board should bear in mind that this is an idea - generating group. Persons should be selected who are widely known in the community, and who are outspoken and innovative. Such a group should be the nucleus for a recreation program to serve the entire Apex population.

Such a group would have to start from scratch in acquiring recreation facilities. Present ownership of recreational facilities in Apex is vested with civic clubs and membership organizations. These clubs and organizations serve a very worthwhile function in providing these facilities - indeed, were it not for these efforts, recreational facilities might not exist at all. However, at least two main difficulties confront this kind of ownership of recreation facilities:

First, there are legal questions. The question of liability for injury at such facilities when used for public functions is a thorny one. Insurance coverage must either be carried by the

club or membership organization, or must be engaged for individual events by the Town or other organizations using the facility.

Equal opportunity participation is a requirement before federal funding assistance is available to acquire public recreation land and to construct public recreation facilities. Persons of all races and persuasions must be able to avail themselves of such recreational opportunities. Club or private ownership often limits this opportunity.

Private ownership also poses maintenance problems. Private or club owners sometimes have difficulty maintaining a recreational facility, particularly if a degree of public use is involved. Public use requires a durability of facility, a level of maintenance, and a responsibility of supervision that a civic organization or club may have difficulty providing. Facilities constructed for the enjoyment of organization members only are often deteriorated by public use, but public funds cannot be spent to maintain them.

Because of these two kinds of difficulty, public ownership, direction, and supervision of recreational facilities and programs is desirable, particularly when the population has reached the size of Apex, and when the development and population increase are projected for the future.

With public ownership and direction in mind, the Town Board should state its intent to establish a town recreation department, reappoint a Recreation Commission, and proceed with planning for a public recreation program. The services of a recreation consultant would benefit the Recreation Commission. The fund of experience available through the existing Recreation Commission and its knowledge of recreation desire and need in the community would be invaluable to a consultant in preparing a recreation plan for the Town.

Because recreational facilities require land, the recreation program should be combined with an effort to acquire public land in the town for both park and recreational use. Public open land is a valuable adjunct in areas of urban density. Too often in an atmosphere of urgency and rapid development, acquisition of public land parcels is neglected, causing public land needs to be fulfilled later at very high prices. Apex should look now and continue looking in the future for land parcels suitable for park and recreational use. When acquired on a timely basis, these parcels would cost a fraction of their future value.

Particular attention should be paid to acquiring land in stream valleys. Stream valleys lands are often unsuitable for residential or other development, and can form a park network accessible to nearby residences when they are in public ownership. Sewage outfalls and other utility installations can advantageously follow stream valleys, enhancing the liveability and visual appearance of the surrounding land. In such instances, the expense and difficulty of acquiring utility easements is also eliminated.

Park and recreation land can be acquired through purchase, gift, or other means. Regardless of the acquisition method, the town government should

adopt a policy of accepting and promoting such land acquisition, and should attempt to assemble useable tracts for the future use and benefit of the town.

Another recreational project that would benefit the citizens of Apex would be the acquisition of recreational rights to a land site adjacent to the B. Everett Jordan reservoir project of the United States Army Corp of Engineers. Such recreational sites are available when a town expresses interest in developing them. Contact has already been made between Apex and the Corp of Engineers, and a plan for an Apex recreational site on the B. Everett Jordan project is in preparation. Acquisition of this facility would also reinforce the need for a parks and recreation department in the Apex town government, because administration of such a lake-side facility would require professional design, maintenance, and supervision.

In summary, the town of Apex should orient a Recreation Commission toward establishing - with consultant help - a parks and recreation department for the Town of Apex. A plan of action should be devised involving short term and long term program and facility goals. These goals should involve acquisition of land and facilities and establishment of a recreational program to serve all needs and age groups in the community.

Chapter VI

CAPITAL IMPROVEMENTS

The present town hall for the Town of Apex is poorly designed and overcrowded and is not an efficient place to transact town business. The bill-paying public is confined to a small space directly inside the front door with a less-than-desirably designed double-swinging door separating the public from the town employee area behind the counter. Two - and often more - employees occupy a common office behind this counter that offers little space and work privacy. The police department is crowded into a small area toward the front of the building, a space so small that it limits proper function of the department.

The town meeting room serves a multitude of purposes other than town meetings. Several health functions and agencies including the blood-mobile make use of this space. Most of these functions, both present and past, have fixtures or equipment appertenant to their function that are left on the premises, giving the room a very cluttered appearance.

The town manager and his secretary occupy offices opening from the side of this meeting hall, a situation that detracts from and limits their efficiency.

Entrance to the town hall is not well defined. Persons unfamiliar with the building and the operations within it often enter through the police department or the bookkeeping areas that are located at the front of the building - and appear to be the main entrances thereto. A side entrance functions as the main entrance to the meeting hall, and is poorly marked and not easily identified by the public. This entrance is also cluttered by fixtures and vending machines.

Parking for persons doing business in the town hall is available across the street in the library parking lot, with a small number of additional spaces in parallel parking along the street.

The Town should look forward to the planning, design, and construction of a new town hall. Much more space is now needed and much additional space will be needed for proper and efficient function of the town government in the future. A non-resident's first impression of a town is often based on a general impression of streets, trees, and business establishments; his second impression is usually based on the appearance of public buildings located within the town. While the present town hall structure in Apex has a pleasant mellowed exterior appearance, a newcomer's idea of the interior would be less favorable.

The design of a new town hall for Apex should be undertaken only after a thorough study of the Town's present office space, police department, health department, and other needs, and a projection of these needs into the future. This can best be accomplished through the services of a consultant specializing in such studies.

The construction of a facility designed to meet only present needs would be foolish. Land development of all types can be projected for Apex's future, and a town hall of sufficient size to accommodate projected staff growth should be planned. The towns of Cary and Garner, also in Wake County, have experienced rapid development similar to that of Apex within recent years. These two towns have both constructed new town hall facilities to meet these increased needs.

After a thorough study of Town needs, a site close to the central business district should be chosen for construction of the municipal complex. This site should encompass ample land for parking for persons using the facility. As in most towns, parking needs vary from day to day and from night to night. A basic need for staff parking must be accommodated, and enough additional parking provided for the public to attend meetings and clinics.

Separate access, and perhaps a special parking area should be provided the police department because of the emergency nature of some of their functions. At another location, apart from this police department entrance, a drive-up facility for payment of town and utility bills could be provided.

If the appearance-improvement project recently undertaken by the merchants in the Apex central business district is continued and extended, and the area promoted as a leisurely shopping area, perhaps taking its atmosphere cues from an earlier American era, the architectural design of a new town hall should reflect this thinking and effort. A valuable turn-of-the-century atmosphere already exists through the business building appearances in downtown Apex. Other areas have spent millions of dollars artificially duplicating such an atmosphere. Such an asset should be realized and used towards betterment of the town. Continuation and enhancement of this appearance should be urged by all means possible. A town hall compatible with this atmosphere would be a valuable adjunct. Other buildings and residences in the area would do well to continue and expand this theme also.

THOROUGHFARE PLANNING

Under North Carolina Highway Policy, local municipal thoroughfare plans are mutually adopted by local governments and the North Carolina Department of Transportation. Such a thoroughfare plan was adopted by the Town of Apex on December 5, 1967, approved by the advance planning division of the State Highway Commission on December 19, 1967, and adopted by the North Carolina State Highway Commission on February 2, 1968.

This thoroughfare plan designates the numbered highway routes through and around Apex as existing major thoroughfares. A loop road circling the town is proposed on new alignment, located between the Town and Highways 64 and new U.S. 1 respectively. Short sections of new alignment are proposed to connect First Street and Hudson Avenue, forming another street roughly parallel to Salem Street traversing the Town from north to south. Several changes and improvements have been made since adoption of this thoroughfare plan, particularly completion of the U.S. 64 and N.C. 55 intersection and completion of a section of new U.S. 1 that was still in its proposal stage at the time of the plan adoption.

Also since 1968, much change has taken place in the Town. The subdivisions to the north and east were not in place when the thoroughfare plan was adopted, and the commercial development near the intersection of U.S. 64 and old U.S. 1 was not in existence. N.C. Route 55 had not developed commercially to the extent it has today.

A new assessment of the traffic needs of Apex should be made in light of these and other conditions which have changed since the thoroughfare plan was adopted.

Routes 64 and new U.S. 1 effectively serve as an outer loop by-pass for Apex. The Town already has nine or more radial roads that can be considered major thoroughfares, and that travel out in all directions from the town. U.S. 1 and 64 would not now be considered too distant from Apex to serve as outer loop roads, and thought should be given to the possible elimination of the inner loop proposed in the original thoroughfare plan. Some of the radial roads could perhaps be linked together, particularly where a large traffic volume land use exists (e.g., the new high school), but a completed inner loop road might no longer be possible or rational.

The Thoroughfare Plan of 1968 included a major thoroughfare inner loop between the then-existing town limits and the outlying major highways. The Apex town limits have now been extended to Highway 64 to the north, making insertion of this inner loop major thoroughfare through this area difficult. Also, routing of major thoroughfares through subdivisions is difficult unless limited access is required along the major thoroughfares. Many portions of such right-of-way have been acquired in other jurisdictions through subdivision dedication requirements that have been constructed with a driveway entrance for each dwelling located along the right-of-way. When this happened, the residences of houses constructed along this right-of-way live in horror of the traffic increase that would occur if the major thoroughfare right-of-way were ever extended.

With this thinking in mind, a reconsideration of this Apex inner major thoroughfare loop should be undertaken. Highway 64 serves effectively as the northern portion of an outer loop, as does U.S. Highway #1 the southern portion. Some provision should be made in a revised thoroughfare plan for vehicles traversing Highway 55 to by-pass the Apex municipal area.

APPEARANCE EVALUATION

The appearance of towns is evaluated daily by travelers passing through them. A stranger's view of a town is often more perceptive than the view of local residents who have been in the area for some time, are used to the surroundings, and see things in a more familiar and less critical light.

When the residents of a town are able to adopt the eyes of the traveler in an attempt to improve town appearances, they often locate opportunities for appearance improvement that are not expensive and that should have been implemented much sooner if proper attention had been given.

Long distance travelers along Highways 64 and U.S. 1 are not exposed to the center of the Apex town. Along U.S. 1 the traveler glimpses some attractive industrial buildings and the usual gasoline and motel signs that give notice of the presence of a town nearby. Otherwise, he views pleasantly rolling green countryside.

Along Highway 64 when coming from the east, the traveler notes a slowly increased spacing of the Cary development area seemingly terminated by a brief vista of industrial and warehouse supply area that is Apex. Continuing along Highway 64 - an older, longer established highway - the traveler sees rolling countryside interspersed by occasional small-lot development.

Traversing Apex from north to south along Highway 55 is a more revealing experience. The Highway 55 traveler sees a succession of filling stations, fast food restaurants, apparel outlets, tire stores, and other commercial enterprises that have clustered along this highway and have formed a new business district apart from the old district. Further to the south along this route industrial plants, gas terminals, and heavy trucking concerns are located.

In contrast to the new Highway 55 commercial area just mentioned, the central business district has recently undergone an appearance evaluation and a refreshing face-lift. This face-lift has involved voluntary control of the size and location of signs by the participating merchants, plus color-coordinated paint for the entire central business block. The paint colors are varied in such a way as to emphasize individual identities for the stores and gives the central block a much more pleasing and attractive appearance. Signs that were once large in size and profuse in number now are small and placed under the canopy in front of the store entrances. The overall result of these efforts is a much more harmonious and visually unified shopping area.

The commercial area located along Highway 55 is of a different nature from the central business block stores. Much could be done to improve its appearance. In constructing this business area, trees and other foliage were removed, leaving the school and occasional private residences to bear the foliage and appearance responsibility for the entire area. Now that the curb line has been established, and the traffic

patterns stabilized, numerous opportunities are present for replanting of trees and other plants. Shrubbery or trees planted behind the curb line and between the curb cuts, along with a coordinated landscaping plan to enhance the parking areas and side lots of businesses would greatly improve the appearance of the area. A landscape of telephone poles, wires, and commercial buildings without any greenery is bleak indeed.

The Town of Apex, its civic groups, and citizens should undertake this appearance enhancement as a public responsibility. Coordinated planting of trees and other plant materials could be done in much the same manner as the appearance improvement was accomplished in the central business district.

Because it is a developing town in a developing area, thought should begin toward provision of off-street parking for both of the business areas. The central business district, having recently undergone appearance improvement, should experience increased business as a result. On-street parking - particularly parallel spaces - is very limiting when larger customer volumes are anticipated. Also, when laundromats and other commercial establishments with relatively long-term parking requirements for their customers are located in a business area, a larger than normal number of parking spaces should be provided to offset long term use. One solution to this problem is off-street parking related to rear entries to stores in the central business block. This would create a mall-like atmosphere that, in other cities, has been good for business. A customer who feels confident of a parking location will more often head for downtown, and stores offering a walk-through opportunity often get two or more selling opportunities with each person entering.

In the newer business area along Highway 55, off-street parking has already been provided by fast food and take-out food establishments. Businesses of other types will seek locations in this business area, and a planned parking program should be devised to enhance the convenience to patrons. If a business with parking requirements were to locate next to a take-out food concern and usurp its parking, conflict would result between the businesses concerned. Such situations can be avoided through provision and enforcement of a parking ordinance by the Town.

There are several approaches to construction, ownership, and control of parking in business areas. Apex has two distinct types of business areas to deal with. A parking ordinance to deal with both of these situations will need to be carefully worded. Appendix B furnishes material on off-street parking provision and control. A discussion and listing of the pros and cons of different types of parking ownership and control is provided. This material can serve as a beginning point for a parking ordinance for the Town.

When comparing or contrasting the appearance of the two business areas in Apex, signs invariably enter the conversation. The central business district merchants voluntarily control and restrict the size and location of the advertising signs in their area. This is not true of the other business area. Many business areas suffer from "over-kill" of advertising messages. A person traversing the Highway 55 business area of Apex in a car travelling at only 10 m.p.h. would be unable to read all

of the advertising material presented to him through signs. Advertising that is very simply conveyed through limited use of written media has been shown to be much more effective than the over-kill approach.

The two business areas of Apex present an interesting study of the contrasting approaches to sign application. The matter of signs and street graphics has been given extensive study. A book published by the American Society of Landscape Architects entitled Street Graphics addresses several approaches to this problem. A street graphics ordinance for controlling advertising sign and symbols is incorporated as a part of this publication. Appendix C of this Policies Plan duplicates the text of this suggested street graphics ordinance. This suggested ordinance can serve as a starting point for the Town when it considers appearance improvement through sign control.

A picture of Main Street taken around 1908 shows many of the buildings that still exist. A prominent feature of the Main Street were several sizable shade trees. At that time the street was unpaved, and traffic was slower and less frequent. In looking at this picture, one regrets the absence of those trees today. It is regrettable that in the time span since that picture, the number and speed of automobiles have not only caused the paving of vast areas to accomodate them, but has necessitated the removal of street trees. In many other towns, the traffic volumes are too great to allow replanting of trees in downtown areas. In Apex, however, U.S. 1, Highway 64, and Highway 55 route most of the through traffic around the downtown area. Therefore, there is an opportunity to plant seedling trees to improve street appearance and atmosphere for the future citizens of Apex. If an off-street parking plan is devised, some of the space previously occupied by parallel curb parking could be planted in trees and otherwise improved to make shopping Apex an even more pleasant experience.

Chapter IX

POLICIES PLANNING FOR:

Land Development

With anticipated development pressure in mind, the Town of Apex should undertake a detailed land use and land capacity analysis. When left to random, unplanned forces, the land use pattern in a developing area can become undesirable. Land uses and operations that produce noise, fumes, odor, or other disturbance or nuisance factors are not advisably placed near residential areas. Conversely, residential neighborhoods should not be established in areas with good industrial potential. All of these uses have unique space requirements, sometimes requiring buffer zones to assure compatibility with their neighbors.

Policy Procedure

Apex does not presently have sufficient population, tax base, or resources to employ a resident planner. In the future, however, Apex will attain a size that will necessitate a full time person on the town staff to attend to planning matters.

This is not to say there is not present need for planning of many kinds. A town in Apex's development position needs to devote thought and effort to planning in order to avoid troublesome situations and to strive for an improved future.

The type of less-than-full-time effort that Apex can currently use is available through contract. Planning services and memoranda have been available to the Town of Apex for one year. This has involved analysis of all zoning requests and other matters to be considered by the Town Planning Board and the Town Commissioners. Investigations of neighboring land use, soil type, slope, and other factors were undertaken and reported to the planning board and town board to help with planning decisions.

Much of the material emphasized in this Policies Plan has already been introduced to the Planning and the Town Commissioners for their thought and possible action.

Any assessment of the present planning program for the Town of Apex will indicate a pressing need for a new or revised zoning ordinance for the Town. The recent history of consulting planning in Apex has often dealt with piecemeal amendments of the existing ordinance to fit individual land-use situations. The result is a patchwork ordinance, lacking the comprehensiveness necessary in a modern zoning ordinance. Often, particular land uses are not mentioned or dealt with at all by the existing ordinance.

In this situation, it would be advisable to prepare and adopt a completely new zoning ordinance, based on the suggested Wake County Land Use Code. The land use code has been devised for the purpose of standardizing zoning classification and procedure in the several towns in Wake County. The land use code has been the basis for ordinances for other towns in Wake County.

Particular weaknesses of the existing Apex Zoning Ordinance include:

- 1) Ambiguous terminology that could be construed to permit virtually anything almost anywhere.
- 2) Lack of special use or conditional use provisions. A modern zoning ordinance makes extensive use of conditional use provisions to give the town a means of controlling land uses on a permit basis. When a zone change is the only means of control available to a town, such as is the case in Apex, the town loses control over the nature of land use for that particular zoned area. Any land use permissible under the zoning category approved can be built there. Under a conditional use permit, the

town can retain control over appearance, health, and other factors that influence the public good, and a better land-use situation results.

- 3) There is no planned unit development provisions. Under the present Apex zoning ordinance, every differing use proposed for a tract of land must be acted upon individually as a zone change. This not only is a cumbersome mechanism for developers and the Town Board alike, but it is a procedure that works to the detriment of proper development and planning of small areas and neighborhoods within the planning area. Under a planned unit development provision, a developer with some resources could plan and propose an entire area or neighborhood at one time that would include several differing land uses within one application.

These and other shortcomings in the existing Apex Zoning Ordinance would indicate that a new ordinance is needed. Another matter of concern that should be addressed is the non-conforming uses existing in the planning area - particularly in the planning area outside the Town limits. Some years ago, an annexation was made to the town. Coincident with that annexation, the extraterritorial 1-mile planning jurisdiction of the town was also extended. The areas annexed to the town were residential in character and were classified in residential zoning categories when the annexation occurred. In the extended extraterritorial planning area, however, were several uses of commercial and/or industrial nature that were placed in residential zoning categories. These areas are now non-conforming uses under the existing zoning ordinance. In at least one case, the owner of a business in this added planning area had gone to some trouble to secure conforming zoning under the county zoning ordinance. Under the present Apex zoning ordinance, however, he has a non-conforming use - and either he or the town must initiate action in the form of a rezoning request in order for him to obtain conforming status.

Several commercial land uses are in this same state of affairs. The Town of Apex, in consultation with its planner, should undertake to define land use patterns in these areas. Public hearing reaction to legally zoning these commercial uses should be sought, because when commercial zoning is sought for a piece of property located next to a non-conforming use of the same nature, a situation of questionable legality develops for the Town Planning Board and the Town Commissioners.

A future policy for the Town of Apex should be one of cooperation with its larger neighboring municipality. Cary and Apex presently share a common extraterritorial zoning boundary. For each town to ignore the other's presence and proceed independently would be a mistake. This area of interaction between the two towns should be mutually studied and planned for, particularly because of the numerous commercial, residential, and other developments currently being considered along Highway 64. A location near the intersection of Highways 64 and U.S. 1 will probably become attractive to a shopping center developer in the future. Both Cary and Apex have residential developments near Highway 64 that will be an attractive market area for such a shopping center. Because the towns of Cary and Apex will probably both use the water and sewer utilities

extended by the Raleigh urban complex in the future, a proper location for this future commercial activity should be mutually selected by the two towns and appropriate land uses planned accordingly.

Another area for future planning attention is the matter of administrative procedure in the planning process.

Changes in zoning classification or amendments to the zoning ordinance often present difficult decisions for town government. Under North Carolina law, these changes must be publicly advertised for a two-week period, given a public hearing, and a recommendation submitted to the Town Board by the Planning Board before the final decision is made by the Town Board.

In Apex and in many other towns, the public is often heard at more than one meeting. Usually the proponents and other persons in favor of a zone change attend the advertised public hearing, with the opponents turning out for the decision meetings of the Planning Board and the Town Board. This is not a good situation because the Planning Board recommendation to the Town Board often encounters public group opposition in front of the Town Board that was not present at the public hearing.

This is an outline of a set of procedures that can eliminate much of this problem.

- 1) Schedule regular public hearing dates when all matters requiring public hearing and all applicants for zone changes would be heard. Quarterly hearings that would deal with all matters coming up in a three-month period would be feasible. These hearings would be held in March, June, September and December. All requests for hearing (at these quarterly hearings) should be required to be submitted at least four weeks in advance of the hearing date to allow time for advertising and administrative matters. Requests for special public hearings should be heard and approved or denied by the Town Board only.
- 2) Do a thorough job publicizing and advertising the public hearing. This can be done through several means and should be adopted as policy by both boards:
 - a) Advertise in the local paper for the required fifteen days.
 - b) Post a sign giving notice of the proposed action on the affected property.
 - c) Notify all adjacent and neighboring property owners within 500 feet of the affected property through the mail.
 - d) Post notices of the proposed action at several public gathering places in the town.
- 3) Hold public hearings jointly with both boards, the Planning Board and the Town Board, both present at the same time and seated at tables at the front of the hearing room.

- 4) The Planning Board should formulate its recommendation at its next regularly scheduled meeting after the public hearing date.
- 5) At a regularly scheduled meeting the Town Board should accept, reject, or otherwise act on the recommendation forwarded by the Planning Board.

This procedure, when adhered to, has several points to recommend it.

- 1) Everybody on both boards hears the same information at the public hearing. The problem of different interest groups appearing at different times is eliminated.
- 2) If the procedure of making decisions only at regularly scheduled meetings is adhered to, the special request, personal favor action is eliminated.
- 3) Every applicant is treated in the same manner.

APPENDICES

Appendix A

HOUSING CONDITION SURVEY

For purposes of the housing condition survey, all dwelling units were classified into three categories:

SOUND: Sound and well kept, usually having indoor plumbing.

DETERIORATING: Basically sound, usually with indoor plumbing, but showing some deterioration, lack of underpinning, need of paint, or showing aging symptoms.

DILAPIDATED: Unsound, showing a great degree of deterioration, beyond economic repair, generally lacking indoor plumbing.

Instructions: In marginal cases, rate in relation to neighboring properties.

Note presence or absence of outdoor privy and plumbing stack on house. Absence of indoor plumbing probably puts house in either dilapidated or deteriorating category. However there may be structures ratable as good without indoor plumbing - particularly if installation appears feasible.

Off-Street Parking

If a city finds it necessary to enter into the parking field, there are certain factors that must be considered, particularly those related to the legal aspect, the method of financing and the administration of the program.

For some time the courts of various jurisdictions have recognized that parking is a public purpose, and consequently municipalities have the right to tax and exercise the power of eminent domain. Of course, this is contingent upon proper enabling legislation. Therefore, every community should check its state statutes to see if it has sufficient power to carry out an effective parking program.

Usually, state enabling legislation permits many ways of financing parking improvements. Probably the most popular are those related to bond issues. This would include general obligation bonds, special assessment bonds, and revenue bonds. Other techniques include the use of meter revenues for such purposes or private financing of special parking facilities that will eventually become public domain.

In the administration of an off-street parking program there are many things to consider. First of all, what form of agency should be employed - an authority, special board, or regular municipal operation? Once this is determined, consideration should be given to the method of carrying out the construction and operation of these facilities - should city forces do the job, should they be subcontracted out, or should a lease arrangement be created?

Whatever procedure is established in a community, the program should be broad and continuous in nature. Too often in the past, programs have bogged down after excellent starts largely because they were not conceived on the basis of supplying long-range parking needs. Cities must recognize that parking needs are dynamic and must be met by a permanent program that reflects these needs.

Many cities recognizing that the parking problem is best attacked not merely with cures for current ills but with preventive measures as well, have adopted zoning provisions requiring parking facilities.

Different uses of land carry with them different requirements for off-street parking space. Examples of some parking requirements are shown in Table 1.

For cities in which there are privately owned and operated commercial lots, licensing of parking facilities may be advisable. Licensing enables the city to require good standards of cleanliness and safety as well as evidence of financial responsibility on the part of the operator.

As in the case of street layout and design, the provision of adequate parking cannot be considered as an isolated problem. Inadequate parking is in part the result of some community problems and may be the cause of others. A proper approach to its solution calls for a comprehensive approach to the matter of the community's future. The parking program must fit sensibly into the city's master plan.

Assumption by municipalities of responsibility for providing parking off the street is shown for various population groups in Table 2. A total of 746, or two-thirds of 1130 reporting cities own and operate one or more municipal off-street parking lots. Many new cities enter this field every year (66 in 1956) and many more add lots each year to those already in service (303 in 1956).

In addition to lots municipally owned and operated there are many owned and operated privately or in cooperation with the city. A variety of reasons are given for choosing one or another of the methods of operating the off-street facility.

Table 1 Zoning Ordinance Parking Requirements

One Parking Space Required for Each

<u>Building Type</u>	<u>Modal Value</u>	<u>Range of Middle 2/3 Values</u>	<u>No. of Cities</u>
Single-family dwelling	1 unit	--	94
Multi-family dwelling	1 unit	1 unit	176
Theater	10 seats	5-10 seats	104
Hotels	3 guest rooms	2-6 guest rooms	88
Places of Public Assembly	10 seats	5-10 seats	93
Retail Stores	200 sq. ft. gross floor area	200-1,000 sq. feet	56
Office Buildings	200 sq. ft. gross floor area	200-1,000 sq. feet	49
Hospitals	4 beds	2-5 beds	38
Industrial Plants	5 employees	2-5 employees	37
Wholesale Establishments	4 employees	2-5 employees	16
Restaurants	4-1/2 seats	3-10 seats	13

Source: Zoning and Traffic, p. 70.

Table 2 - City-Owned Parking Lots and Spaces: 1956

TOTAL NUMBER OF CITIES

<u>Population Group</u>	<u># Cities Reporting</u>	<u>With Park- ing Lots</u>	<u>Charge- All Lots</u>	<u>Free- All Lots</u>	<u>Some Charge, Some Free</u>	<u>Estab. Lots First Time, 1956</u>	<u>Open- ing More Lots 1956</u>	<u>Median No. City- Owned Spaces</u>	<u>Total No. City- Owned Lots</u>
Over 250,000	41	20	13	1	6	3	7	702	101
100,000 to 250,000	66	40	33	6	0	56	12	353	133
50,000 to 100,000	124	89	53	12	24	4	45	492	471
25,000 to 50,000	279	195	92	39	64	10	81	350	872
10,000 to 25,000	602	402	117	164	121	44	158	195	1,295
All Cities over 10,000	1,130	746	308	222	215	66	303	250	2,872

Source: The Municipal Yearbook 1957, p. 425.

WHO SHOULD OPERATE OFF-STREET PARKING FACILITIES?

Operation by Municipality

Arguments for

1. Facilities are for use of general public.
2. Parking free or at low cost.
3. Facilities can be properly distributed as part of general plan for community.
4. Private enterprise has failed to provide adequate space in cities.
5. Cities using parking meters on the street are already in the parking business.
6. Municipal operation tends to insure continuity and permanency of operation.
7. The provision of terminal facilities is merely an extension of public responsibility for providing and maintaining streets.
8. The municipality which provides parking on the streets should provide places for vehicles to go.
9. The municipality is dependent for a large part of its tax income on the economic welfare of the business district. Where this tax base is shrinking from lack of parking space, the municipality should protect itself by subsidizing such space.

Arguments Against

1. Where private capital has large amounts invested in parking facilities, it is unfair to put the municipality in competition with business.
2. If a municipality shows it is not going into the parking business, private operators will be encouraged to do so.
3. Private parking lots and garages are now providing most of parking capacity in many downtown areas.

Operation by Merchants

Arguments for

1. Downtown merchants are dependent on parkers for trade and should furnish space for those parkers who wish to patronize their stores.
2. Land remains on tax rolls.
3. Persons benefited (merchants and parkers) pay costs - no drain on public funds.
4. Frequently a relatively inexpensive way to insure that customers come into store.
5. Cost figures lower than for commercial facilities - parking arrangements are made in conjunction with business and to encourage increased sales, hence profits from parking are not of primary importance, and fees are small. A small loss on the operation of the parking facility may be overlooked, because business in the stores is increased.
6. There are many successful merchants' parking organizations.

Arguments Against

1. Facilities usually for use of shoppers only.
2. Facilities are not provided on a coordinated basis.
3. Unless system of endorsing parking stubs is worked out the general public or customers of stores not included in group furnishing facilities may use space.
4. Unless minimum purchase system is used, customers may get space costing merchant 10¢ to furnish for purchases netting merchant 1¢.
5. Most stores are not large enough to provide their own facilities. If groups are formed, members of merchants parking group may bar additions to group to maintain competitive advantage.
6. Stores do not create the entire parking problem and merchants should not be required to provide more than a share of the solution. Merchants might prefer contributing to the establishment of a municipal lot to setting themselves up in the parking business.
7. The community as well as the merchant has an interest in the success of business.
8. There are many unsuccessful merchants' parking organizations, in which cost of operation is so high as to outweigh the advantages. Many such enterprises have been abandoned.

Commercial Operation

Arguments for

Arguments Against

- | | |
|---|---|
| 1. Traditional way of doing business. | 1. Parking lots frequently established on temporary basis on vacant lots - no permanent relief. |
| 2. Private lots can be put into operation rapidly. This may be the only way vacant land could be used profitably. | 2. Cost of lease (including taxes) and operating expenses and profits results in high parking fees. |
| 3. Land remains on tax rolls. | 3. Lots located in haphazard manner, provided only where immediate profit is possible. |
| 4. Parkers pay entire cost of operation - no drain on public funds. | 4. Lots frequently operated carelessly. |
| | 5. Lots poorly improved, unsightly. |
| | 6. No financial responsibility on part of many operators. |

Location of parking lots is of prime importance. The Bureau of Public Roads reports that 85 to 94 per cent of the parkers in population groups under 250,000 walk less than 750 feet to business establishments. This distance may be somewhat greater for cities larger than 250,000 population.

Parking lot layout, if carefully done, may add several spaces to the lot capacity. Necessary aisle width will vary with the layout of aisles and stalls. A few years ago stall width of 8 feet was sufficient but stalls of that width are now considered inadequate for safety and convenience in self-operating lots.

Appendix C

The following model Street Graphics Ordinance is excerpted from "Street Graphics, a Concept and a System", by William R. Ewald, Jr., AIP, AIGA and Daniel R. Mandelker, JSD, published by the American Society of Landscape Architects Foundation.

Copies of the full text of this model ordinance and the background material with it are available as the title listed above from:

The American Society of Landscape Architects Foundation
1425 H Street N.W.
Washington, D. C. 20005

The page numbers given as references in this appendix are page numbers from the publication cited above, not pages in this publication. The reader is encouraged to obtain a copy of the cited publication to pursue a detailed interest.

Model Street Graphics Control Ordinance

SECTION 1.01. STATEMENT OF PURPOSE

The purpose of this ordinance is to create the legal framework for a comprehensive but balanced system of street graphics, and thereby to facilitate an easy and pleasant communication between people and their environment. With this purpose in mind, it is the intention of this ordinance to authorize the use of street graphics which are:

1. compatible with their surroundings;
2. appropriate to the type of activity to which they pertain;
3. expressive of the identity of individual proprietors or of the community as a whole;
4. legible in the circumstances in which they are seen.

SECTION 1.02. TABLE OF BASIC DESIGN ELEMENTS

A Table of Basic Design Elements for street graphics is hereby attached to and made part of this ordinance. Except in Areas of Special Control, no street graphic may be erected, displayed, or substantially altered or reconstructed except in conformance with the Table of Basic Design Elements. For purposes of this ordinance, a "street graphic" is any letter, symbol, number, or combination of these, which can be seen from the right-of-way of a street or highway. "Street graphics" include signs, other than public information signs, but do not include buildings.

SECTION 1.03. APPLICATION OF TABLE OF BASIC DESIGN ELEMENTS

1. The Table of Basic Design Elements which is attached to and made part of this ordinance is to be of full force and effect immediately upon enactment of this ordinance.
2. In order to better facilitate the administration of this ordinance and the Table of Basic Design Elements, the planning commission, as soon as practicable following the enactment of this ordinance, is authorized to and may:
 - (a) publish and from time to time revise regulations specifying which activities are to be assigned to the commercial, industrial and institutional categories of the Table of Basic Design Elements. In so doing, the commission may consult and use:
 - (1) the Standard Industrial Classification categories developed by the Office of Statistical Standards of the United States Office of Management and Budget and
 - (2) the definitions of commercial, industrial, and institutional uses contained in the zoning ordinance of the (county).
 - (b) publish and from time to time revise a list of all the streets and highways in the (county), indicating whether they are two-lane, four-lane, six-lane, or expressways. For purpose of this ordinance, an "expressway" is a limited-access highway to which access is restricted except by ramps or interchanges;

- (c) publish and from time to time revise a list of the average traffic speeds on all streets, highways, and expressways, indicating whether those speeds are 15, 30, 45, or 60 miles per hour;
- (d) publish and from time to time revise a map of the (county) indicating all areas of the (county) which are residential or institutional in character. The commission may base its determination of residential and institutional areas on either of the following:
 - (1) land uses as permitted in the zoning map of the (county), or as permitted by variance, special exception, or other administrative action of the zoning agencies; or
 - (2) the nature and character of the land uses in such areas.

SECTION 1.04. CHARACTERIZATION OF SURROUNDING AREAS

For purposes of applying the Table of Basic Design Elements, the area surrounding any commercial or industrial use shall be considered residential or institutional wherever there is a residential or institutional area within (500) feet of the property line of such commercial or industrial use. If commercial uses occupy an area (20) acres or more in size, or if industrial uses occupy an area (100) acres or more in size, only that part of the commercial or industrial area which is within (500) feet of a residential or institutional area shall be considered adjacent to a residential or institutional area.

SECTION 1.05. ITEMS OF INFORMATION ALLOWED

1. Each land use is entitled to display street graphics containing up to ten items of information on each street or highway to which it has access. However, if the name of the proprietor occupying the building and its premises contains more than ten items of information, the name may be displayed once on each street frontage on any allowable street graphic, provided no other graphic is displayed on the building or its premises to that frontage.
2. An "item of information" means any of the following: a syllable of a word; an abbreviation; a number; a symbol; a geometric shape. In addition, graphics combining several different geometric or non-geometrical shape or shapes of unusual configuration are to be assessed one additional item for each noncontinuous plane.
3. In computing items of information, the following lettering is not to be included:
 - (a) lettering less than 3 inches in height, if it is contained in a wall graphic;
 - (b) letters less than 19 inches in height carved into or securely attached in such a way that they are an architectural detail of a building, provided:
 - (1) they are not illuminated apart from the building, are not made of a reflecting material, and do not contrast sharply in color with the building; and
 - (2) do not exceed 1 inch in thickness.

4. Provided the items of information allowance authorized by this section is not exceeded, street graphics may be displayed as ground graphics, wall or roof graphics, or projecting graphics, within the limitations and restrictions as further provided by this ordinance.

SECTION 1.06. GROUND GRAPHICS

1. Any activity may display one or more ground graphics of the area and height indicated in the Table of Basic Design Elements provided:

- (a) the activity is accessible by automobile and has off-street parking on the premises; or
- (b) the edge of the building or structure in which the activity is conducted is set back at least 35 feet from the edge of the adjacent street or highway right-of-way. The height of a ground graphic shall be measured from the grade at the edge of the right-of-way.

2. Ground graphics are also subject to the following additional limitations:

- (a) a ground graphic which is 6 square feet or more in area may be displayed only on a frontage of 100 feet or more, and may not be closer than 100 feet to any other ground graphic which is 6 square feet or more in size;
- (b) an activity may have both ground and projecting graphics if only one of these graphics is 6 square feet or more in size.

3. Ground graphics for industrial activities are subject to the following special area and height requirements, provided the industrial activity has a frontage of at least 300 feet and a setback of at least 75 feet:

- (a) the area of the ground graphic may be no larger than the signable wall area of the building, as determined under Section 1.07.
- (b) the height of the ground graphic may be 5 feet in institutional or residential surroundings, otherwise 10 feet.

SECTION 1.07. WALL AND ROOF GRAPHICS

1. Subject to the requirements of the Table of Basic Design Elements, any activity may display wall or roof graphics, or a combination of both. Wall graphics may be attached flat to or pinned away from the wall, and may not project from the wall by more than 12 inches. For purposes of this ordinance, a "roof graphic" is a street graphic which is displayed above the eaves and under the roof line, and an "above-roof graphic" is a street graphic which is displayed above the roof line.

2. The permitted area of wall and roof graphics is shown by the Table of Basic Design Elements, which indicates the percentage of the signable area of the building or structure which may be utilized for wall and roof graphics. "Signable area" of the building means an area of the facade of the building up to the roof line which is free of windows and doors or major architectural detail. The person displaying the wall or roof graphic may determine the signable area by choosing one such area on the building

facade below the height limits for wall and roof graphics established by paragraph 4(c) of this section, and by then calculating the number of square feet which are enclosed by an imaginary rectangle or square which is drawn around this area. The signable area for one-story commercial activity above the roof line shall be calculated as the distance between the roof line and the maximum height permitted for a ground graphic at that location times the length of any one facade.

3. In calculating the signable wall area of a building which may be used for wall and roof graphics the following provisions also apply:
 - (a) if the graphic is enclosed by a box or outline, the total area of the graphic, including the background, is counted as part of the signable area. If the graphic consists of individual letters, only the area of the letters is counted as part of the signable area;
 - (b) if individual letters or a box graphic is placed between window spandrels, the height of the letters or box may not exceed two-thirds of the height of the spandrel;
 - (c) a graphic may not cover or interrupt major architectural features.
4. Wall and roof graphics are subject to the following height limitations:
 - (a) wall graphics placed in the space between windows may not exceed in height more than two-thirds of the distance between the top of a window and the sill of the window above, or major architectural details related thereto;
 - (b) all or a portion of the signable area may be contained in a roof graphic. If no wall graphic is displayed, an industrial activity may display roof graphics above the roof line no larger than the signable wall area. For commercial activities no roof or above the roof graphic may be higher than the ground graphic permitted for the same activity at the same location permitted by the Table of Basic Design Elements;
 - (c) wall graphics may extend to the roof line. (If the building consists of two or more stories, wall graphics for places of entertainment and places of assembly seating 200 or more persons may extend to the roof line, but wall graphics for all other activities may not extend above the second story.)

SECTION 1.08. PROJECTING GRAPHICS

1. Any commercial or institutional activity may display one projecting graphic on each street frontage. The permitted area of projecting graphics is shown in the Table of Basic Design Elements.
2. The following additional regulations also apply to projecting graphics:
 - (a) projecting graphics must clear sidewalks by at least 8 feet, and may project no more than 4 feet from the building (marquee graphics are excluded from this constraint) or one-third the width of the sidewalk, whichever is less;
 - (b) projecting graphics must be pinned away from the wall at least 6 inches;

- (c) projecting graphics are not permitted at the intersection of corners, except at right angles to a building front;
- (d) projecting graphics may extend to the bottom of the eaves of a building. (If the building consists of two or more stories, projecting graphics for places of entertainment and places of assembly seating 200 or more persons may extend to the roof line, but projecting graphics for all other activities may not extend above the second story.)
- (e) no projecting graphic may be displayed unless the building to which it is attached is 20 feet or more in width, and no projecting graphic may be closer than 50 feet to any other projecting graphic (unless one of the projecting graphics consists solely of a symbol.)

SECTION 1.09. SPECIAL SITUATIONS

1. Buildings in joint occupancy of multiple use. When a building (a) is occupied by a single occupant who carries on more than one activity within the building, or (b) contains two or more activities carried on by different occupants, the building shall be assigned to only one of the activities categories established under the provisions of Section 1.03(2)(a). The owner of the building shall determine to which activity category the building is to be assigned.

2. Off-street parking. Street graphics may be displayed on the side or rear of a building adjacent to an off-street parking area if the off-street parking area is 40 feet or more in width. However, the side or rear of the building adjacent to the off-street parking area may not be included when calculating the signable wall area allowable to wall graphics under this ordinance.

3. Multiple frontages. If a building has frontage on or access to two or more streets, highways, or expressways, each side of the building is to be separately considered for purposes of determining compliance with the provisions of this ordinance and of the Table of Basic Design Elements. Area allowances for street graphics may be utilized only on the side of the building from which they are calculated.

SECTION 1.10. AMORTIZATION

1. All nonconforming street graphics must be removed, changed, or altered to conform to the provisions of this ordinance according to the following schedule:

Original cost of graphic	Amortization period
Less than \$500	6 months
\$500 to \$1,000	12 months
\$1,000 to \$3,000	24 months
\$3,000 to \$6,000	48 months
More than \$6,000	60 months

2. If more than one street graphic permitted for an activity is or becomes nonconforming, the original cost of all the street graphics so displayed shall be aggregated for purposes of determining the applicable amortization period.

3. A street graphic is or becomes "nonconforming" if it is not in conformance with the provisions of this ordinance and the Table of Basic Design Elements on either of the following dates:

- (a) the date of original enactment; or
- (b) any date on which this ordinance or the Table of Basic Design Elements is amended.

The amortization period prescribed in Subsection 1 of this ordinance shall begin to run on the date on which the street graphic becomes nonconforming.

SECTION 1.11. AREAS OF SPECIAL CONTROL

1. It is recognized that the regulations provided in this ordinance cannot sensitively handle all of the street graphic situations in an area as diverse as that covered by the (city or county). Therefore the local governing body, by ordinance and following notice and hearing, may designate any of the following areas as areas of special control:

- (a) architectural, historic, or scenic areas;
- (b) commercial plazas (urban, strip, or billboard).

The planning commission shall prepare a map showing all areas of special control which have been designated by the local governing body.

2. An architectural, historic, or scenic area is an area whose special and unique visual characteristics or whose natural beauty requires special street graphic regulations to insure that all street graphics used within the area are compatible with each other. Generally, it is expected that street graphics regulations in these areas will be more restrictive than those which would otherwise be applicable under this ordinance. Unless otherwise permitted by rule or ordinance, only projecting and ground graphics permitted in institutional surroundings will be allowed in these areas.

3. Urban and strip plazas are intensive commercial areas whose character indicates that street graphics should be permitted under regulations which are less restrictive than those which would otherwise be applicable under this ordinance.

- (a) An urban plaza may be either of the following:
 - (1) a street intersection, square, or similar area which is devoted to intensive commercial uses, provided right angle distances between buildings are 200 feet or more, and provided driving speeds do not exceed 25 miles per hour; or
 - (2) a regional or community shopping center which is (20) acres or more in area.

- (b) A strip plaza is a street or thoroughfare having commercial activities on each side of the right-of-way and which is:
 - (1) adjacent to an urban plaza;
 - (2) not more than one mile in length; and
 - (3) does not carry traffic moving at speeds exceeding 25 miles per hour.

4. A billboard plaza is an area in which a street graphic is displayed as a free-standing billboard. For purposes of this ordinance, a "billboard" is a street graphic which is not displayed as accessory to another activity on the same premises.

5. In areas of special control, the local governing body by ordinance may establish, or by ordinance may authorize the planning commission by rule to establish special regulations for street graphics which are either more restrictive or less restrictive than those provided by this ordinance and the Table of Basic Design Elements, and the Table of Auxiliary Design Elements, if any, having regard to the character of the area of special control to which the special regulations will apply.

SECTION 1.12. PERMITS

The local governing body may require that no street graphic other than temporary window graphics may be displayed unless application to display the street graphic is made to the planning commission, and the commission has by permit authorized the display of the street graphic. The planning commission may determine the manner in which application to display a street graphic is made; may require that the application be accompanied by a site plan, drawings, or other suitable illustrations sufficient to indicate the character of the graphic and of the surroundings in which it is to be displayed; and may attach to its approval of an application to display a street graphic those conditions which in its judgment are reasonable, having regard to the character of the street graphic and of the surroundings in which it is to be displayed. The local governing body may also require that any permit issued by the planning commission under the provisions of this section must be submitted to the planning commission for review and renewal after a period or periods to be specified by the local governing body. Permits are not required for temporary window graphics included under Section 1.13.

SECTION 1.13. AUXILIARY DESIGN ELEMENTS

1. The local governing body may authorize the planning commission to adopt rules governing the display of Auxiliary Design Elements for activities, having regard to the limitations established by this section and the character of the activity and of the surroundings in which it is located.

2. Rules may be enacted for the following Auxiliary Design Elements, subject to the limitations established for each graphic.

- (a) Awnings, canopies, and marquees are permitted for all activities in all areas. However, any letters over 3 inches in height which are displayed on an awning or canopy are debited against the items of information allowance established by Section 1.05.

- (a) Awnings, canopies, and marquees are permitted for all activities in all areas. However, any letters over 3 inches in height which are displayed on an awning or canopy are debited against the items of information allowance established by Section 1.05. Awnings and canopies may extend to within 1 foot of the vertical plane formed by the curb.
- (b) Time-and-temperature devices are permitted for all except industrial activities in all areas. They may be on the ground, projecting, or attached to the wall, and are subject to the regulations applicable to ground, projecting, and wall graphics.
- (c) Sidewalk showcases are permitted for all commercial activities, but may be placed only on sidewalks which are 15 feet or more in width.
- (d) Temporary window graphics are permitted for all except industrial activities in all areas. They may not exceed more than 15 per cent of the area of the window in which they are displayed. Temporary window graphics are not debited against the items of information allowance established by Section 1.05.
- (e) Banners are permitted only for commercial and institutional activities located in areas of special control designated as commercial plaza (urban).

3. Rules may be adopted to permit the following types of illumination and mechanical movement for all activities in all areas, subject to the limitations indicated in this section.

- (a) Colored light. White is the only color of light which is permitted:
 - (1) in areas designated as institutional or residential, or within 500 feet of such areas; or
 - (2) for institutional activities.
- (b) Flashing graphics. A flashing graphic is a light which is intermittently on and off. Flashing graphics are permitted only for motion picture theaters and for amusement and recreation services, and are not permitted:
 - (1) in areas designated as residential or institutional, or within 500 feet of such areas; or
 - (2) on streets and highways on which the traffic speed is in excess of 25 miles per hour.
- (c) Mechanical movement refers to animation, revolution, movement up and down, or movement sideways. Graphics which move mechanically may be permitted only for motion picture theaters, amusement and recreation services, or as permitted in areas of special control. Windblown devices such as pennants, spinners, and streamers are
- (d) not permitted for any activity.
- (e) Illuminated surface colors. Internal illumination, i.e., a light source concealed or contained within the graphic, and which becomes visible in darkness through a translucent surface.
- (f) Indirect illumination, i.e., a light source not seen directly.

- (g) Floodlight illumination, provided that the floodlight or spotlight is positioned so that none of the light shines onto an adjoining property or in the eyes of motorists of pedestrians.
- (h) Bare bulb illumination, except in areas designated as residential or institutional, or within 500 feet of such areas.
- (i) Neon tube illumination, i.e., a light source supplied by a neon tube which is bent to form letters, symbols, or other shapes.
- (j) Flame as a source of light is permitted for eating and drinking places and for hotels and lodging places.

SECTION 1.14. SEVERANCE CLAUSE

This clause should be drafted in accordance with local practice.

y = yes
n = no
wh = white
A,B,C,D = categories of activity
see pg. 45

% wall area = % of graphs that is background,
see pg. 76
areas given in square feet, see pg. 52-53
Items of information, see pg. 55

AUXILIARY DESIGN ELEMENTS (recommended)

banner	awning canopy	marquee	time & temperature	sidewalk showcase	window temporary	window permanent	movement	color	flood	internal	indirect	tube	barebulb	flashing	flame	surface color
town	y	y	y	y	15%	25%	C	y	y	y	y	y	BC	C	B	all
center	y	y	y	y	15%	25%	C	y	y	y	y	y	BC	C	B	all
n	y	y	y	n	15%	25%	C	y	y	y	y	y	BC	C	B	all
n	y	y	y	n	15%	25%	n	y	y	y	y	y	BC	n	B	all
town	y	y	y	y	15%	25%	C	y	y	y	y	y	BC	C	B	all
center	y	y	y	y	15%	25%	C	y	y	y	y	y	BC	C	B	all
n	y	y	y	n	15%	25%	C	y	y	y	y	y	BC	C	B	all
n	y	y	y	n	15%	25%	n	y	y	y	y	y	BC	n	B	all
town	y	y	y	y	15%	25%	C	y	y	y	y	y	BC	C	B	all
center	y	y	y	y	15%	25%	C	y	y	y	y	y	BC	C	B	all
n	y	y	y	n	15%	25%	C	y	y	y	y	y	BC	C	B	all
n	y	y	y	n	15%	25%	n	y	y	y	y	y	BC	n	B	all
n	y	y	y	n	no	25%	n	y	y	y	y	y	BC	n	B	all
town	y	y	y	y	15%	25%	n	wh	y	y	y	y	BC	n	B	wh+l;
center	y	y	y	y	15%	25%	n	wh	y	y	y	y	BC	n	B	or two
n	y	y	y	y	15%	25%	n	wh	y	y	y	y	BC	n	B	mater-
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	BC	n	B	ials
town	y	y	y	y	15%	25%	n	wh	y	y	y	y	BC	n	B	wh+l;
center	y	y	y	y	15%	25%	n	wh	y	y	y	y	BC	n	B	or two
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	BC	n	B	mater-
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	BC	n	B	ials
town	y	y	y	y	15%	25%	n	wh	y	y	y	y	BC	n	B	wh+l;
center	y	y	y	y	15%	25%	n	wh	y	y	y	y	BC	n	B	or two
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	BC	n	B	mater-
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	BC	n	B	ials

COMMERCIAL
HOW SEENSURROUNDED
BY COMMERCE
OR MANUFACTURING

lane & speeds		items of information	wall area height	ground area height		projecting area height	roof below peak above		
2	15	10	40%	-----see page no. 59-----	8	12'	8	n	n
	30	10	40%		25	16'	25	n	n
	45	10	40%		50	20'	no	y	n
	60	10	40%		100	24'	no	y	n
4	15	10	40%	-----see page no. 59-----	8	14'	8	n	n
	30	10	40%		40	18'	40	n	n
	45	10	40%		90	22'	no	y	n
	60	10	40%		150	26'	no	y	n
6	15	10	40%	-----see page no. 59-----	13	16'	13	n	n
	30	10	40%		40	20'	40	n	n
	45	10	40%		100	24'	no	y	n
	60	10	40%		190	28'	no	y	n
express- way	60	10	40%	-----see page no. 59-----	230	32'	no	y	n

SURROUNDED
BY INSTITUTIONS,
RESIDENCES,
OR RURAL

2	15	10	30%	-----see page no. 59-----	6	10'	6	n	n
	30	10	30%		20	12'	20	n	n
	45	10	30%		35	14'	no	y	n
	60	10	30%		70	16'	no	y	n
4	15	10	30%	-----see page no. 59-----	6	12'	6	n	n
	30	10	30%		30	14'	30	n	n
	45	10	30%		65	16'	no	y	n
	60	10	30%		105	18'	no	y	n
6	15	10	30%	-----see page no. 59-----	10	14'	10	n	n
	30	10	30%		30	16'	30	n	n
	45	10	30%		70	18'	no	y	n
	60	10	30%		135	20'	no	y	n
express- way	60	10	30%	-----see page no. 59-----	160	22'	no	y	n

y = yes
n = no
wh = white
A,B,C,D = categories of activity
see pg. 45

% wall area = % of graphs that is background,
see pg. 58
areas given in square feet, see pg. 52-53
items of information, see pg. 55

AUXILIARY DESIGN ELEMENTS (recommended)

[illegible]

INDUSTRIAL
HOW SEENSURROUNDED
BY COMMERCE
OR MANUFACTURING

lane & speeds		items of information	wall area height		ground area height		projecting area height		roof below peak above	
2	15	10	30%	no	8	12'	no	no	no	
	30	10	30%	limit	25	16'	no	no	no	
	45	10	30%	no	50	20'	no	no	yes	
	60	10	30%	limit	100	24'	no	no	yes	
4	15	10	30%	no	8	14'	no	no	no	
	30	10	30%	limit	40	18'	no	no	no	
	45	10	30%	no	90	22'	no	no	yes	
	60	10	30%	limit	150	26'	no	no	yes	
6	15	10	30%	no	13	16'	no	no	no	
	30	10	30%	limit	40	20'	no	no	no	
	45	10	30%	no	100	24'	no	no	yes	
	60	10	30%	limit	190	28'	no	no	yes	
express- way	60	10	30%	same	230	32'	no	no	yes	

SURROUNDED
BY INSTITUTIONS,
RESIDENCES,
OR RURAL

2	15	10	20%	20'	6	10'	no	no	yes	no
	30	10	20%	20'	20	12'	no	no	no	no
	45	10	20%	20'	35	14'	no	no	yes	no
	60	10	20%	20'	70	16'	no	no	yes	no
4	15	10	20%	20'	6	12'	no	no	no	no
	30	10	20%	20'	30	14'	no	no	no	no
	45	10	20%	20'	65	16'	no	no	yes	no
	60	10	20%	20'	105	18'	no	no	yes	no
6	15	10	20%	20'	10	14'	no	no	no	no
	30	10	20%	20'	30	16'	no	no	no	no
	45	10	20%	20'	70	18'	no	no	yes	no
	60	10	20%	20'	135	20'	no	no	yes	no
express- way	60	10	20%	20'	160	22'	no	no	no	no

-----see page no. 63-----

y = yes
 n = no
 wh = white
 A,B,C,D = categories of activity
 see pg. 45

% wall area = % of graphs that is background,
 see pg. 76
 areas given in square feet, see pg. 52-53
 items of information, see pg. 55

AUXILIARY DESIGN ELEMENTS (recommended)

banner	awning canopy	marquee	time & temperature	sidewalk showcase	window temporary	window permanent	movement	color	flood	internal	indirect	tube	barebulb	flashing	flame	surface color
town	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	wh+l;
center	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	or two
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	mater-
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	ials
town	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	wh+l;
center	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	or two
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	mater-
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	ials
town	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	wh+l;
center	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	or two
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	mater-
n	y	y	y	n	15%	25%	n	wh	y	y	y	y	n	n	n	ials
n	y	y	y	n	no	25%	n	wh	y	y	y	y	n	n	n	same

INSTITUTIONAL
HOW SEEN

SURROUNDED BY INSTITUTIONS
RESIDENCES, OR RURAL
SURROUNDED BY COMMERCE
OF MANUFACTURING

lane & speeds		items of information	wall area height	ground area height	projecting area height	roof below peak above
2	15	10	20%	6 10'	6	n n
	30	10	20%	20 12'	20	n n
	45	10	20%	35 14'	no	y n
	60	10	20%	70 16'	no	y n
4	15	10	20%	6 12'	6	n n
	30	10	20%	30 14'	30	n n
	45	10	20%	65 16'	no	y n
	60	10	20%	105 18'	no	y n
6	15	10	20%	10 14'	10	n n
	30	10	20%	30 16'	30	n n
	45	10	20%	70 18'	no	y n
	60	10	20%	135 20'	no	y n
express- way	60	same	20%	160 22'	no	y n

